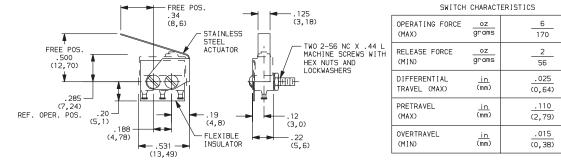
#### **AUXILIARY ACTUATORS**

Easy to assemble auxiliary actuators for the MM Series provides the end-user with the capability to operate the switch with force not directly in line with the operating button. Actuators are available in either the plain-leaf or roller-leaf style. Each actuator kit consists of the stainless steel spring-leaf with an integral side mounting plate, flexible insulator, two (2) #2-56 x 7/16" roundhead screws, with lockwashers and hex nuts. Actuator and hardware are supplied unassembled. Specially formed auxiliary actuators are available, consult Customer Service Center.

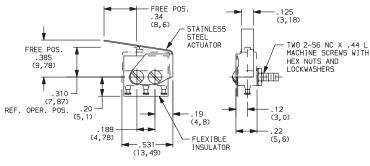






ALS-2 LEAF (Low Motion)

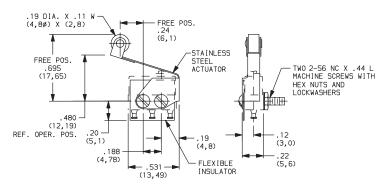




#### SWITCH CHARACTERISTICS

OPERATING FORCE (MAX)	oz grams	7
RELEASE FORCE	oz	2
(MIN)	grams	56
DIFFERENTIAL	<u>_in</u>	.025
TRAVEL (MAX)	(mm)	(0,64)
PRETRAVEL	<u>_in</u>	<u>.225</u>
(MAX)	(mm)	(5,72)
OVERTRAVEL	<u>in</u>	.015
(MIN)	(mm)	(0,38)



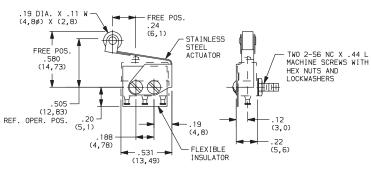


#### SWITCH CHARACTERISTICS

OPERATING FORCE (MAX)	oz grams	<u>    6                                </u>
RELEASE FORCE	oz	2
(MIN)	grams	56
DIFFERENTIAL	<u>in</u>	.025
TRAVEL (MAX)	(mm)	(0,64)
PRETRAVEL	<u>in</u>	<u>.110</u>
(MAX)	(mm)	(2,79)
OVERTRAVEL	<u>in</u>	.015
(MIN)	(mm)	(0,38)

#### AWS-2 LEAF ROLLER (Low Motion)





SWITCH CHARACTERISTICS					
OPERATING FORCE	<u>oz</u>				
(MAX)	grams	198			
RELEASE FORCE	<u>oz</u>				
(MIN)	grams	56			
DIFFERENTIAL	<u>in</u>	<u>.025</u>			
TRAVEL (MAX)	(mm)	(0,64)			
PRETRAVEL	<u>in</u>	<u>.225</u>			
(MAX)	(mm)	(5,72)			
OVERTRAVEL	in	<u>.015</u>			
(MIN)	(mm)	(0,38)			

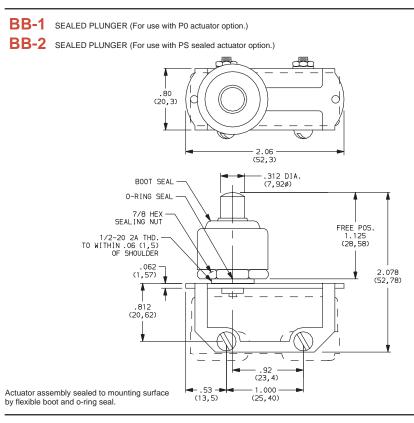
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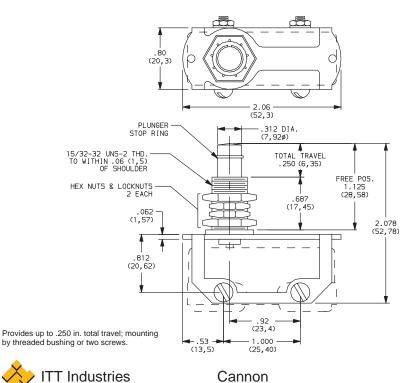
#### **AUXILIARY ACTUATORS**

Basic precision HB Series switches, with any terminal style, can be used with these attachable actuators. As supplied, the actuator is not assembled to the switch; the switch must be ordered separately. The actuator can be assembled to the switch before mounting, or the actuator can be mounted on the panel or chassis and the switch installed after wiring. Assembly screws, nuts and lockwashers are furnished.



BJ-1 OVERTRAVEL PLUNGER (For use with P0 actuator option.)

BJ-2 OVERTRAVEL PLUNGER (For use with PS sealed actuator option.)

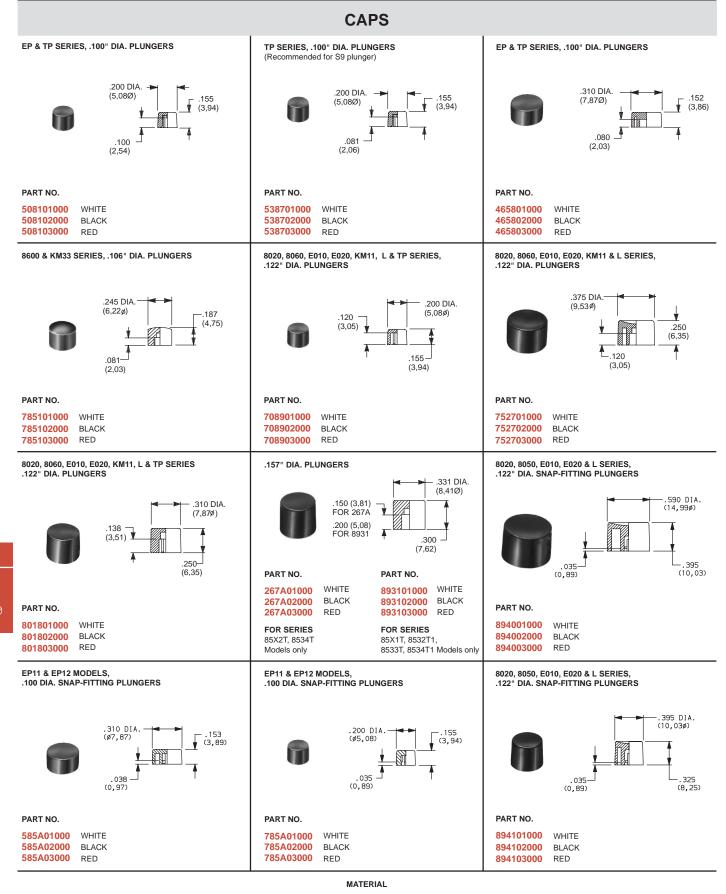




Miscellaneous Components, Hardware & Technical Data

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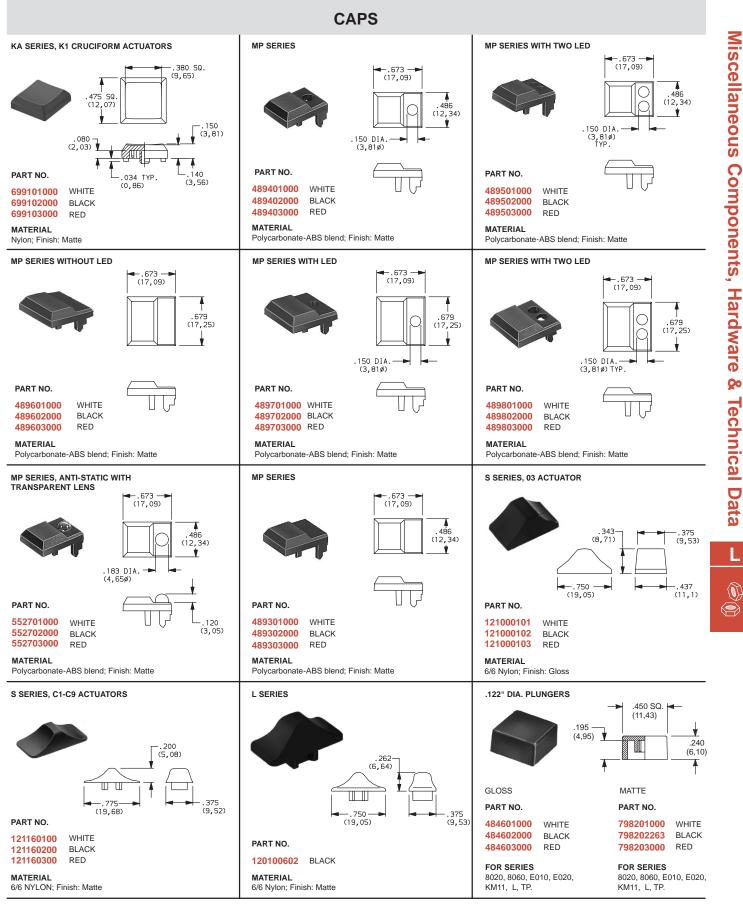
P



Nylon. Finish: Gloss.

Special colors, custom markings available, consult Customer Service Center.

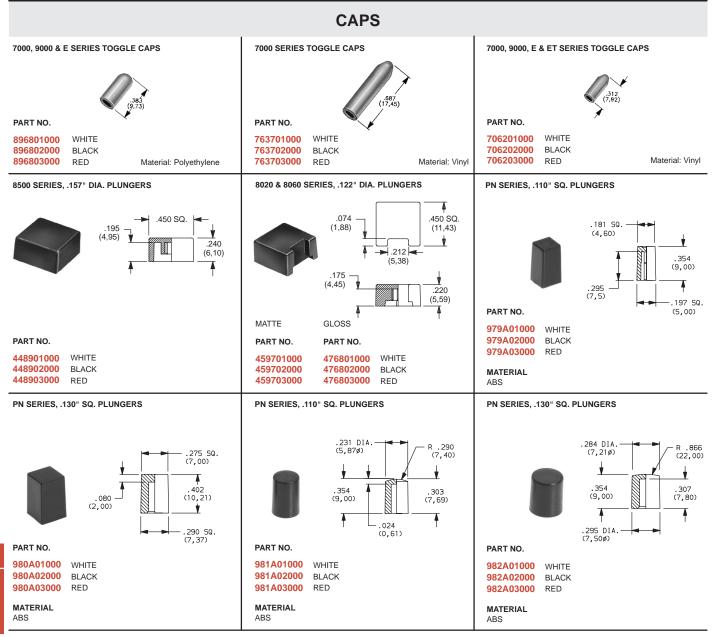
K ITT Industries



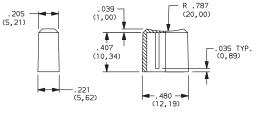
Special colors, custom markings available, consult Customer Service Center.



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PN SERIES, .130" SQ. PLUNGERS



 PART NO.

 983A01000
 WHITE

 983A02000
 BLACK

 983A03000
 RED

MATERIAL ABS

#### MATERIAL

Nylon. Finish: Matte or gloss. Special colors, custom markings available, consult Customer Service Center.



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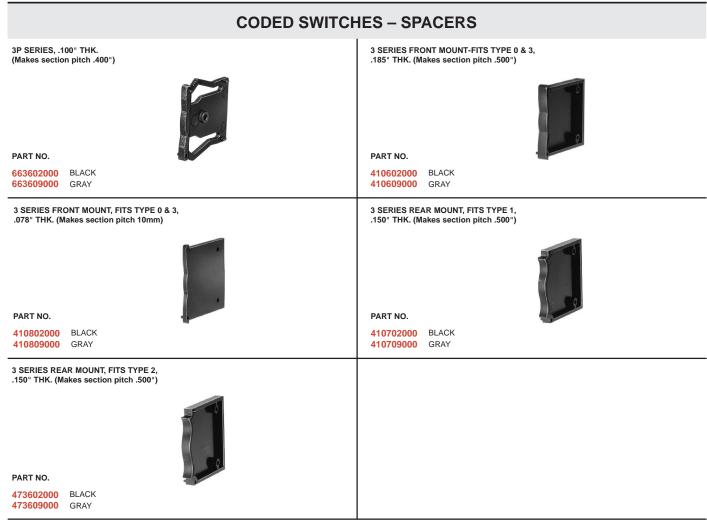
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CODED	SWITCHES – BLANK (INACTIVE	E) SECTIONS
3U SERIES BLANK SECTION, .302" THK. (Replaces active section.)	3P SERIES BLANK SECTION, .300" THK.	S2 SERIES BLANK SECTION, .315" THK.         Image: state
PART NO. 123B002000 BLACK 123B009000 GRAY 3 SERIES FRONT MOUNT, TYPE 0 & 3,	PART NO. 663702000 BLACK 663709000 GRAY 3 SERIES FRONT MOUNT, TYPE 0 & 3,	PART NO.           212702000         PLAIN-BLACK           229002000         W/RIB-BLACK           3 SERIES REAR MOUNT, TYPE 1,
.315" ТНК.	.315" ТНК.	.350" ТНК.
PART NO.           413602000         W/RIB-BLACK           413609000         W/RIB-GRAY           400502000         W/RIB & W/OUT SPRINGS-BLACK           400509000         W/RIB & W/OUT SPRINGS GRAY	PART NO.413502000PLAIN-BLACK413509000PLAIN-GRAY400702000PLAIN W/OUT SPRINGS-BLACK400709000PLAIN W/OUT SPRINGS GRAY	PART NO.           400602000         W/RIB-BLACK           400609000         W/RIB-GRAY           400802000         PLAIN-BLACK           400809000         PLAIN-BLACK
3 SERIES REAR MOUNT, TYPE 2, .350" THK.		
4734     4733		
PART NO.           473402000         W/RIB-BLACK           473409000         W/RIB-GRAY           473302000         PLAIN-BLACK           473309000         PLAIN-BLACK           473309000         PLAIN-GRAY		
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•	   -11	www.ittcannon.com

	C	DDED SV	VITCHES	- END PLATE	ES		
S2 SERIES REAR MOUNT, MOUNTING STYLE S2S WITH .157" (4MM) FLANGE S2 SERIES REAR MOUNT, MOUNTING STYLE S2R WITH .315" (8MM) FLANGE			S2 SERIES RI WITH NO FLA	EAR MOUNT, MOUNT	ING STYLE S2T		
a contraction of the second seco			A ST				
PART NO. 211702000 BLACK		PART NO.	BLACK		PART NO.	BLACK	
211709000 GRAY	Two required for complete assembly.	211809000	GRAY	Two required for complete assembly.	212002000	GRAY	Two required for complete assembly
2 SERIES FRONT MOUNT, MOUN	ITING STYLE S2F	<b>3U SERIES</b>			3 SERIES FRO	ONT MOUNT, TYPE 3	
			FT-with hole	RIGHT-with pin			
		PART NO.					
PART NO.		113B02000 113B09000	LEFT-BLACK LEFT-GRAY		PART NO.		
211902000 BLACK 211909000 GRAY	Two required for complete assembly.	114B02000 114B09000	RIGHT-BLACK RIGHT-GRAY	One left and one right piece required for complete assembly.	655702000 655709000	BLACK GRAY	Two required for complete assemble
3 SERIES FRONT MOUNT, TYPE (	)	3 SERIES RE	AR MOUNT, TYPE	1	3 SERIES RE	AR MOUNT, TYPE 2	
			0				
PART NO.		PART NO.			PART NO.		
413402000 BLACK 413409000 GRAY	Two required for complete assembly.	400402000 400409000	BLACK GRAY	Two required for complete assembly.	473202000 473209000	BLACK GRAY	Two required f complete assemb
3P SERIES							
P							
LEFT-with hole	RIGHT-with pin						
23502000 LEFT-BLACK							
623509000         LEFT-GRAY           623602000         RIGHT-BLACK           623609000         RIGHT-GRAY	One left and one right piece required for complete assembly.						
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Miscellaneous Components, Hardware & Technical Data

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HARDWARE FOR FIELD ASSEMBLY-3 SERIES ONLY.

#### SCREWS FOR FIELD ASSEMBLY OF THUMBWHEEL SWITCHES (2 screws needed per assembly + 403500000 nuts)

	NUMBER OF SECTIONS IN ASSEMBLY						
		FRONT MOUNTING		REAR MO	DUNTING		
SCREW PART NUMBER (0-80 UNF THD. SIZE)	MTG. STYLE - 00, 30	MTG. STYLE – 03, 33	MTG. STYLE – 04, 34	MTG. STYLE – 10, 20	MTG. STYLE – 14, 24		
412700000	1 – 2	1	1	1 – 2	1		
412701000	3 - 4	2 - 3	2	3	2		
412702000	5 – 7	4 – 5	3 - 4	4 - 6	3 – 4		
412703000	8 – 10	6 - 8	5 – 6	7 – 9	5 – 6		
412704000	11 – 13	9 – 10	7 – 8	10 – 12	7 – 8		
412705000	14 – 16	11 – 13	9 – 10	13 – 15	9 – 10		

See 3 series mounting styles, pages J-11 thru J-14.

NUT DRIVER (For 403500000 nut)

NUT



Two nuts required per assembly and screws.

PART NO.

403500000

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PART NO.

406100652



Not required for assembly.

Not supplied with sample pieces.

Miscellaneous Components, Hardware & Technical Data



Special colors, custom markings available, consult Customer Service Center.

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#### FRAMES—SEPARATE SNAP-IN

Frames snap into panel opening and are independent from switch mounting. Accurate positioning of the PC mounted switch relative to the panel opening is necessary to provide proper clearance between actuator and frame. Available in two basic styles and four panel thicknesses .047-.125 in. Material: Nylon. Finish: Matte.



.620 - .625

(15,75 - 15,88)

0 & E SERIES				
2 ACTUATORS	.047" (1,19) PANEL THK.	.062" (1,57) PANEL THK.	.090" (2,29) PANEL THK.	.125" (3,18) PANEL THK.
.815 (15,62) (15,62)	PART NO. 452901000 452902263 452903000	PART NO. 452701000 452702263 452703000	PART NO. 452801000 452802263 452803000	PART NO.           452601000         WHITE           452602263         BLACK           452603000         RED
), 8020, 8060, 8500, E, E010, E020 & TP SERIES J60, J80, J90 ACTUATORS	.047" (1,19) PANEL THK.	.062" (1,57) PANEL THK.	.090" (2,29) PANEL THK.	.125" (3,18) PANEL THK.
	PART NO.	PART NO.	PART NO.	PART NO.
.765 (19,43)	432501000 432502263 432503000	432601000 432602263 432603000	432701000 432702263 432703000	432801000 WHITE 432802263 BLACK 432803000 RED
	PA			1007 1000
4529, 4527, 4528, 4526	N	4325, 4326		4327, 4328
.005 R. MAX. (0,13) TYP. 		.005 R. (0,13) MAX. TYP.		.005 R. (0,13) MAX. TYP.

.595 - .605

(15,11 - 15,37)

Miscellaneous Components, Hardware & Technical Data

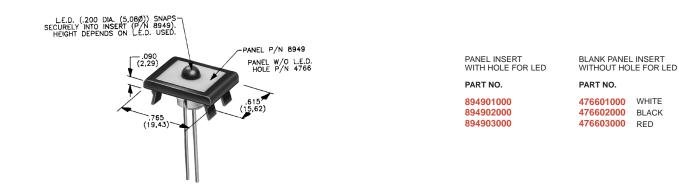
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PANEL INSERTS

(WILL FIT SEPARATE SNAP-IN FRAMES FOR J50, J60, J90 ACTUATORS).

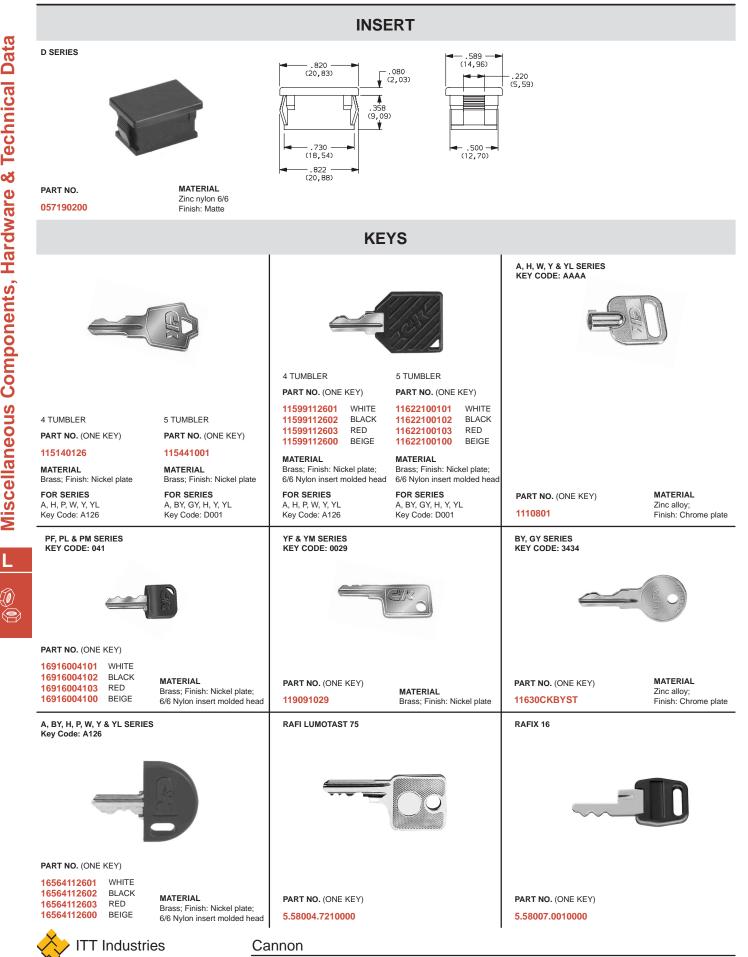
.797 - .803 (20,24 - 20,40)

Above frames (part nos. 432XXXXX) are also available with insert which accepts LED for indicator light assembly. Order insert separately from frame. Blank insert panel (without hole for LED) also available. LED not included, see page L-17 for LED information and recommendations.



Special colors, custom markings available, consult Customer Service Center.

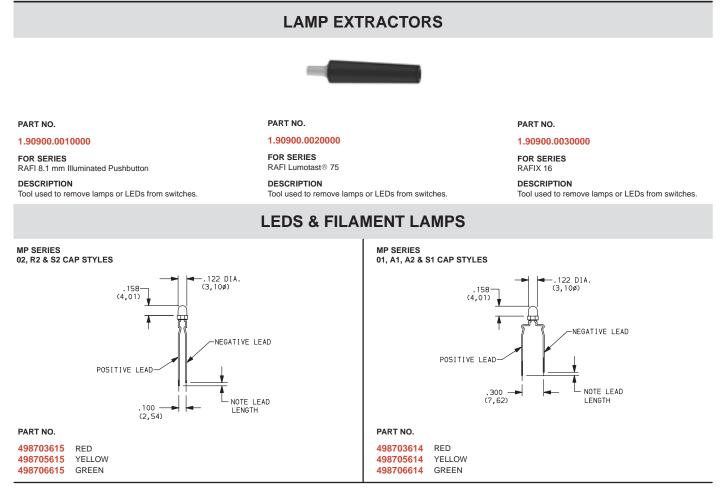




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Miscellaneous Components, Hardware & Technical Data



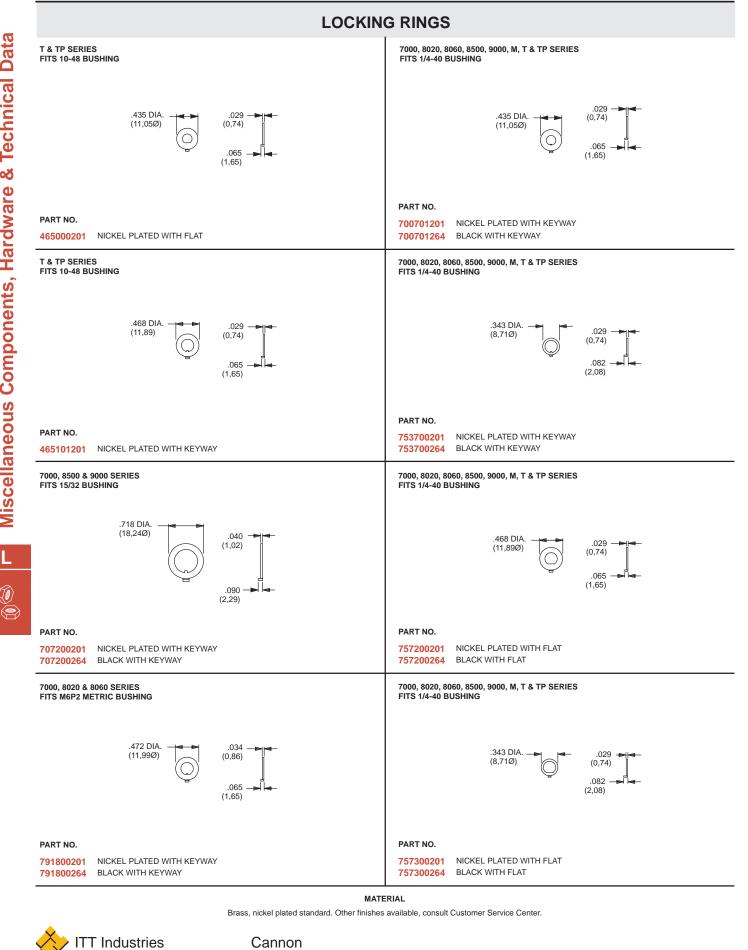
LED PART NUMBER	DESCRIPTION	COLOR	BASE	VOLTAGE U <sub>B</sub>	FORWARD CURRENT I <sub>F</sub>	FOR SERIES	LAMP EXTRACTOR PART NUMBER
1.90691.0260000 1.90691.0270000 1.90691.0280000	1 Chip LED	Red Green Yellow	Bi-pin T1	DC*	10 mA	8.1mm Illuminated Pushbutton	1.90900.0010000
1.90692.0010000 1.90692.0020000 1.90692.0030000	1 Chip LED	Red Green Yellow	T4.5	DC*	10 mA	Lumotast <sup>®</sup> 75	1.90900.0010000
1.90692.0450000 1.90692.0460000 1.90692.0470000	6 chip LED	Red Green Yellow	W 2x4.6 d	24 +10% AC/DC max.	12 mA	RAFIX 16	1.90900.0030000

\*Must install a suitable external series resistor.

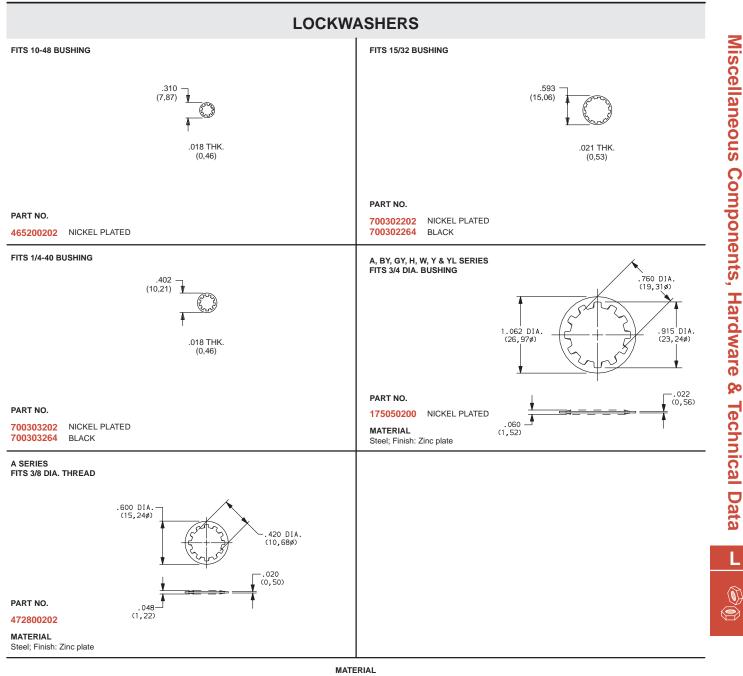
FILAMENT LAMP	PART NUMBER	DESCRIPTION	BASE	RATED VOLTAGE	RATED CURRENT (A or mA)	RATED POWER (W)	AVERAGE OPERATING LIFE (Hrs.)	FOR SERIES	LAMP EXTRACTOR PART NUMBER
	1.90100.0210000 1.90100.0220000 1.90100.0230000	Miniature Telephone Filament Lamp	T 4.5	6 V 12 V 24 V	0.05 A 0.04 A 0.02 A	0.3 0.48 0.48	10,000 10,000 8,000	Lumotast <sup>®</sup> 75	1.90900.0020000
	1.90120.0130000 1.90120.0120000 1.90120.0110000 1.90120.0090000	Filament Lamp	W 2x4.6 d	6 V 12 V 24 V 60 V	0.20 A 0.08 A 0.04 A 0.02 A	1.2 1.2 1.2 1.2	20,000 15,000 7,000 3,300	RAFIX 16	1.90900.0030000
	1.90180.4710000 1.90180.4720000 1.90180.4730000	Indicator Lamp T1	Bi-pin	6 V 12/14 V 24/28 V	0.05 A 0.03 A 0.016 A	0.3 0.456 0.456	50,000 20,000 5,000	8.1 mm Illum. Pushbuttons	1.90900.0010000

L-17

K ITT Industries



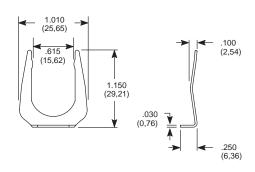
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Steel, nickel plated standard. Other finishes available, consult Customer Service Center.

#### **MOUNTING CLIP**

A, BY, GY, H, P, W, Y & YL SERIES

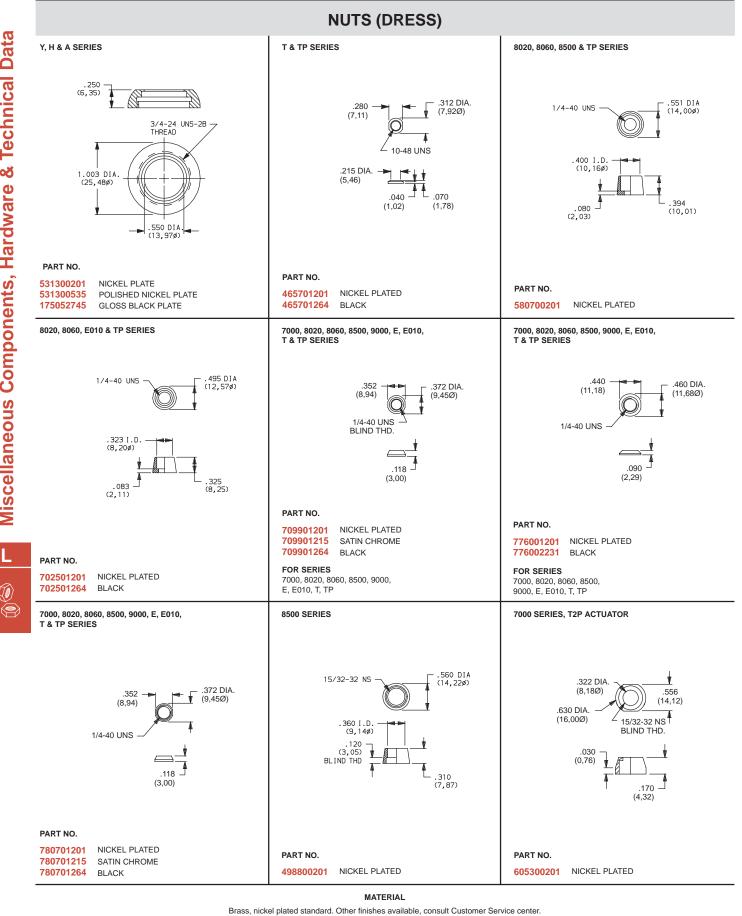


PART NO.

#### 175050300

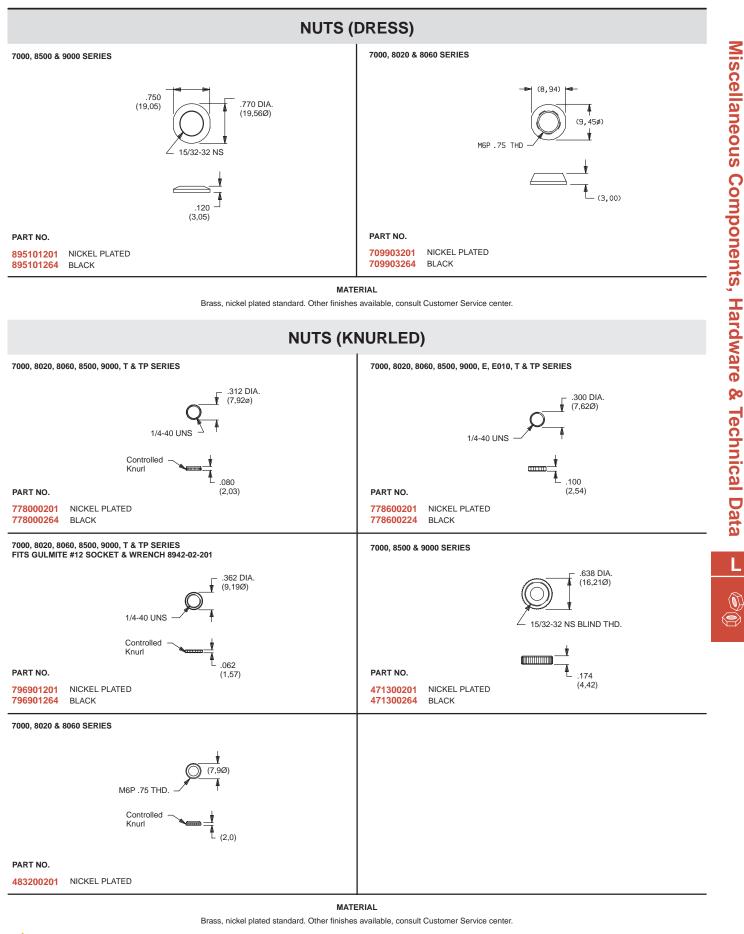
MATERIAL Steel; Finish: Nickel or bright zinc plate





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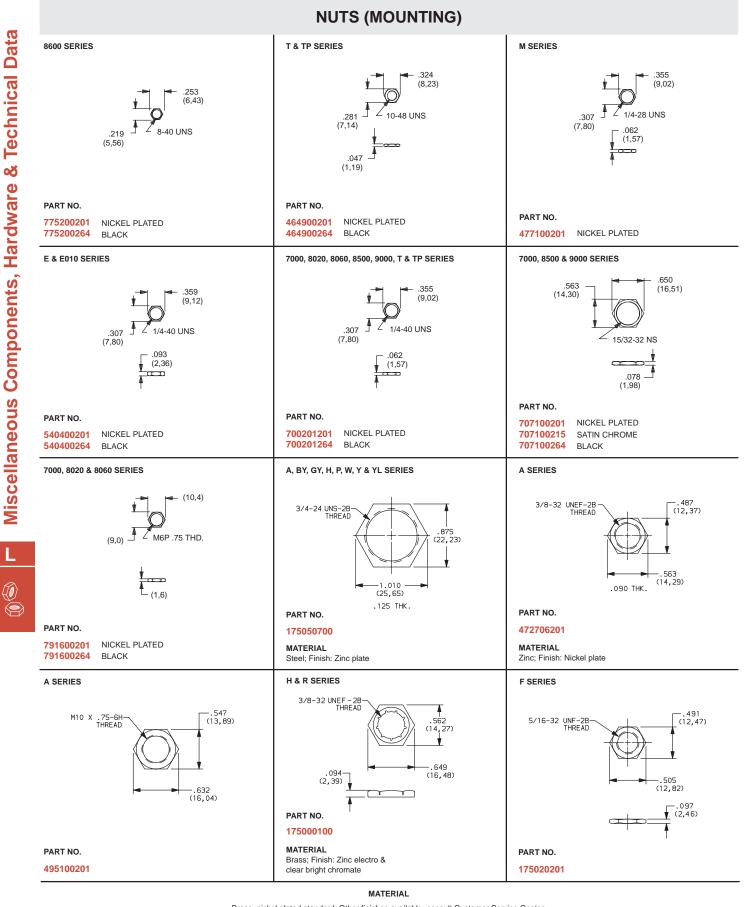
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L-21



Brass, nickel plated standard. Other finishes available, consult Customer Service Center

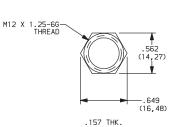
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#### NUTS (MOUNTING)

YM SERIES



#### PART NO. 179090123

MATERIAL Brass, nickel plated standard. Other finishes available, consult Customer Service Center.

#### **RECESSED BRACKET**

D & DM SERIES



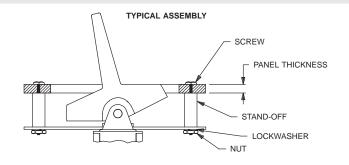
PART NO.

057090100

MATERIAL 6/6 Nylon

#### ROCKER AND LEVER HANDLE SWITCH-PANEL MOUNTING HARDWARE

Panel mounting hardware for rocker and lever handle switches is available separately. Mounting hardware consists of two screws, two nuts, two standoffs and two lockwashers per switch, and is available for panel thicknesses of 1/16, 3/32 and 1/8 inch. See part numbers below.



7000 Series: J1, J2, J54, J64, J94 actuators. T Series: J1, J6 actuators.

PART NO.	PANEL THK.	STANDOFF LENGTH
761101000	1/16 IN. (1,59)	.295 (7,49)
761102000	3/32 IN (2,38)	.264 (6,71)
761103000	1/8 IN. (3,18)	.233 (5,92)

7000 & 9000 Series: J4, J5 actuators.

PART NO.	PANEL THK.	STANDOFF LENGTH
775001000	1/16 IN. (1,59)	.375 99,53)
775002000	3/32 IN (2,38)	.344 (8,74)
775003000	1/8 IN. (3,18)	.312 (7,92)

9000 Series: J1, J2, J3, J50, J60, J90 actuators. 7000 Series: J3 actuators.

PART NO.	PANEL THK.	STANDOFF LENGTH
770601000	1/16 IN. (1,59)	.295 (7,49)
770602000	3/32 IN (2,38)	.264 (6,71)
770603000	1/8 IN. (3,18)	.233 (5,92)

7000 & 9000 Series: J10 actuators.

PART NO.	PANEL THK.	STANDOFF LENGTH
770701000	1/16 IN. (1,59)	.295 (7,49)
770702000	3/32 IN (2,38)	.264 (6,71)
770703000	1/8 IN. (3,18)	.233 (5,92)

Screws, nuts, lockwashers: Stainless steel. Standoffs: Nylon, standard Aluminum available, consult Customer Service Center.



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#### MATERIAL

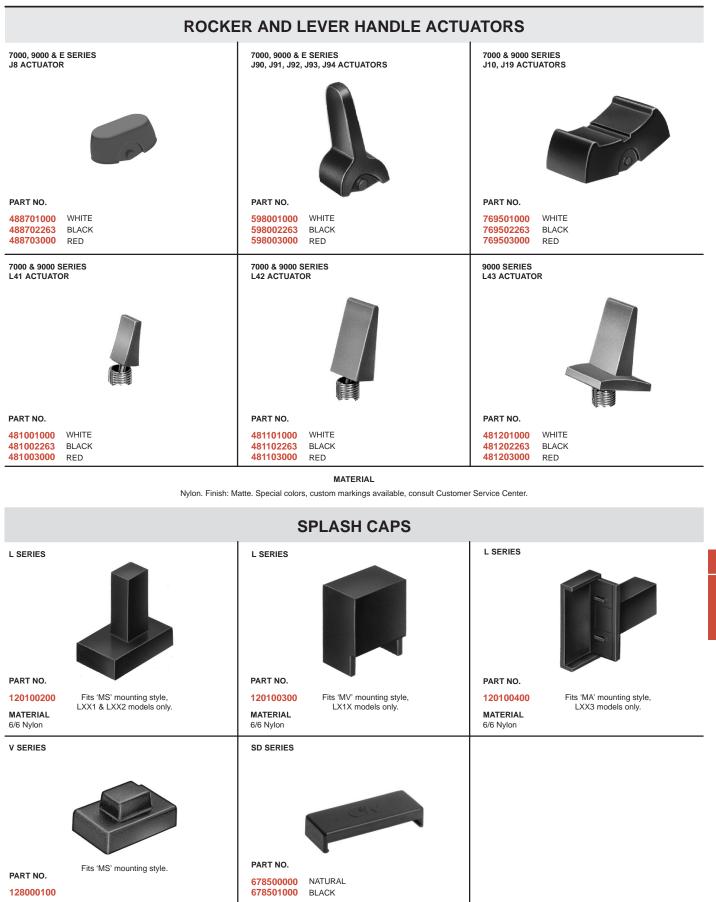
Miscellaneous Components, Hardware & Technical Data

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Nylon. Finish: Matte. Special colors, custom markings available, consult Customer Service Center.





MATERIAL 6/6 Nylon

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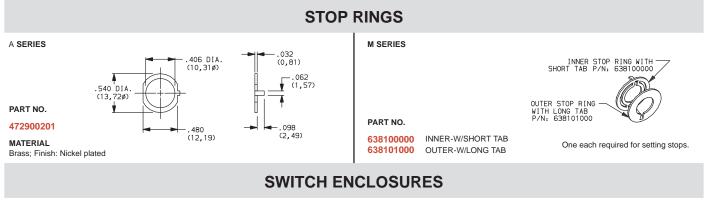
X ITT Industries

L-25

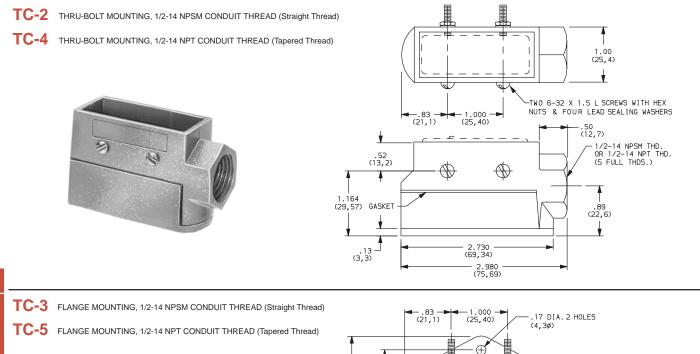
MATERIAL

6/6 Nylon

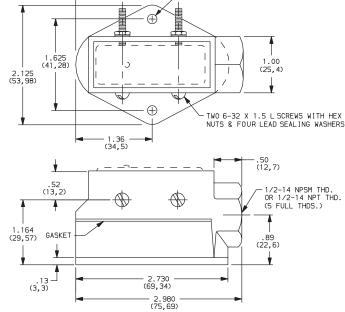
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These enclosures make it easy to install HB and HG Series switches with electrical conduit, electrical tubing or armored cable. The switch is inserted through the open top of the enclosure and is secured by two screws (furnished). The lower section of the enclosure is completely removable and gives free access to the switch terminals. Switches having either the flat base or step base can be used. Switches must be ordered separately.









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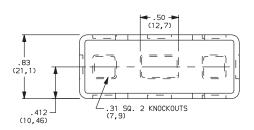
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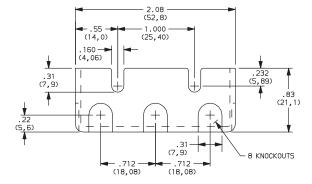
#### **TERMINAL COVERS**

These terminal covers are available with HB and HG Series switches. They are made of molded phenolic, with knockouts that permit wires to be brought in at convenient points. They are held in place by the switch mounting screws.

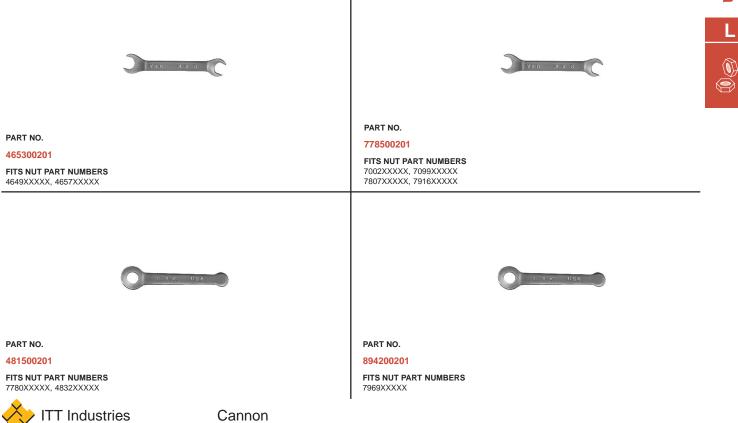
#### TC-1

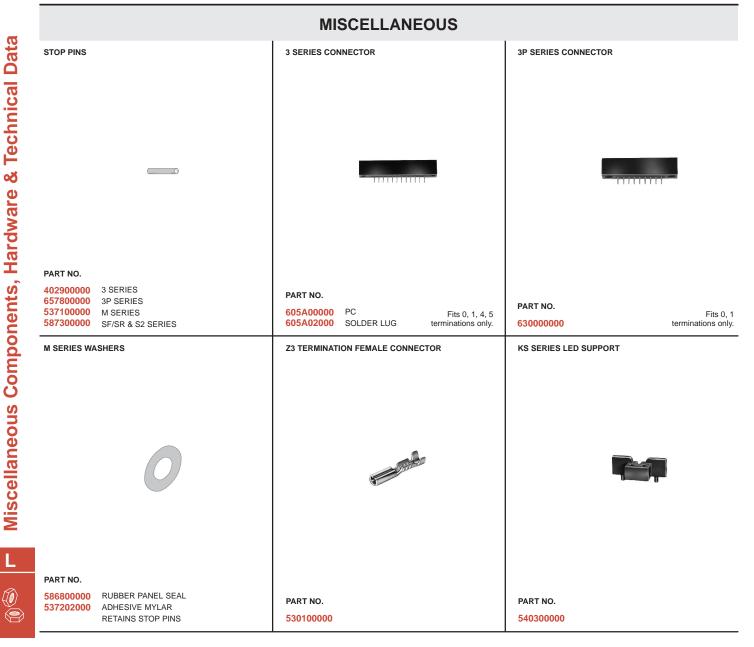






WRENCHES







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