

## Technical data UL

### General UL technical data

<b>Contact blocks</b>		
Rated insulation voltage, UL		600V
Rated thermal current		10A / 600VAC 2.5A / 600VDC
Minimum rating		24VDC, 5mA
Mechanical life (millions of operations)		10
<b>Temperature specifications</b>		
Ambient temperature		-25°C to +40°C
<b>Terminal connections</b>		
Contact blocks	Recommended torque	Wire size
Minimum	7 lb. in.	20 AWG
Maximum		2 x 12 AWG
Lamp assemblies	7 lb. in.	20 AWG
Minimum		2 x 14 AWG
Maximum		
Plus-minus pozidrive size 2 screws with DIN washer		

### Contacts – NEMA A600, 10A thermal

Voltage	Inductive amps	Maximum make	Maximum break	Max VA
120 VAC	6A	60A	6A	7200VA
240 VAC	3A	30A	3A	
480 VAC	1.5A	15A	1.5A	
600 VAC	1.2A	12A	1.2A	

### Contacts – NEMA Q600, 5A thermal

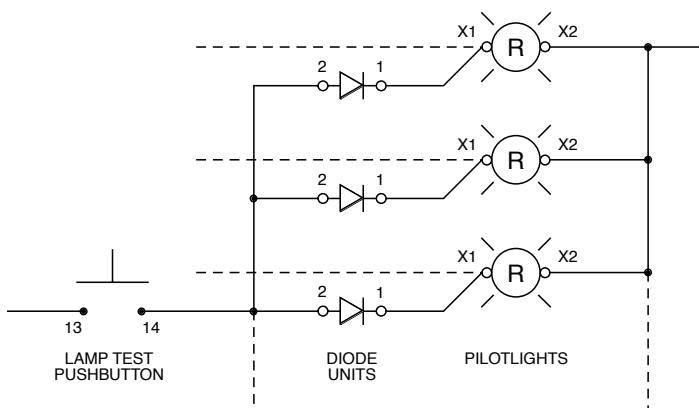
Voltage	Maximum make or break current	Maximum make or break volt-amps at 600V or less
125 VDC	.55A	69VA
250 VDC	.27A	
301 – 600 VDC	.10A	

### Low energy contacts – gold plated

Range	Rating
Maximum	NEMA A600 & NEMA Q600
Minimum	5VAC/DC, 2mA; 12VAC/DC, 1mA; 24VAC/DC, 5mA

### Lamp bulbs connected in common

If several lamps are to be connected to a common lamp-test pushbutton, a separate diode must be connected in series with each respective lamp. A special block with a built-in diode (CBK-CBD) is available for this purpose and can be securely snapped onto the lamp block or placed at the side.



WHEN SEVERAL PILOT LIGHTS ARE CONNECTED TO A COMMON LAMP TEST BUTTON, CONNECT A DIODE TO EACH PUSHBUTTON AS SHOWN. A SPECIAL DIODE BLOCK IS AVAILABLE FOR THIS PURPOSE.

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### Contact block terminal marking

Type	1 N.O.	1 N.C.
Catalog number	CBK-CB10(G)	CBK-CB01(G)
Schematic diagram		

### Approvals

CBK, 22mm

NEMA & UL Listed for Types 1, 3R, 4, 4X, 12 & 13 applications

CBG, 30mm

NEMA & UL Listed for Types 1, 3R, 4, 4X, 12 & 13 applications

# Technical data

## IEC

Pilot Devices  
Type CBK 22mm

### Mechanical life

Pushbuttons with flush or extended button, momentary mushroom pushbutton	2 million operations
Selector switch, maintained mushroom push-button, key operated selector switch and double pushbutton	0.5 million operations
Toggle switch	1 million operations
Lockable pushbuttons	0.3 million operations

### Temperature

Ambient temperature during operation	-25 to +70°C
Exception: All pilot devices with 2 W continuously lit filament bulb	-25 to +40°C
Storage temperature	-30 to +85°C

### Terminals

Plus-minus pozidrive size 2 screw with DIN-washer.	
Connectable area	min. 1 x 0.5mm <sup>2</sup>
max. 2 x 2.5mm <sup>2</sup>	
Recommended torque	0.9 Nm

### Contact blocks

Mechanical endurance	10 million operations
Self cleaning contacts of silver, N.C. contact has forced breaking.	
At voltages and currents below 24 V and 5.6 mA two contact blocks in parallel are recommended. As an alternative, gold plated contacts are recommended.	

### Ratings as per UL/CSA, NEMA A 600, Q600

Rated insulation voltage	600V
Rated thermal current	10A
Rated operational current at	120V 6A
	240V 3A
	480V 1.5A
	600V 1.2A

### Ratings as per IEC 947-5-1

Rated insulation voltage, $U_i$	690V
Rated thermal current, $I_{th}$	10A
Rated operational current, $I_o$ , utilization category AC 15, at	120V 8A
	230V 6A
	400V 4A
	690V 2A
Rated operational current, $I_o$ , utilization category DC 13, at	24V 5A
	125V 1.1A
	250V 0.55A

Contact resistance	.025 ohms
Max. number of contact blocks per operator ①	
Pushbutton, toggle switch	6
Mushroom pushbutton	5
Double pushbutton, selector switch, key operated selector switch and emergency stop pushbuttons	4
Short circuit protection	
Max. fuse at 1 kA	16 A ordinary 10 A delayed

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## Technical data IEC

### Lamp block

Ratings as per IEC 947-5-1

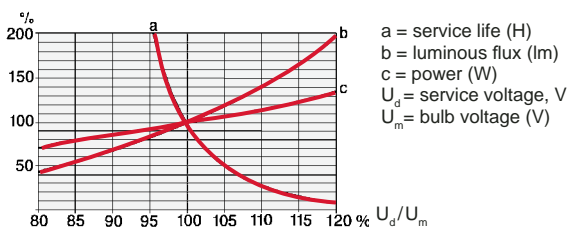
Rated insulation voltage	230V
Base	BA 9s
Max. permissible power	2W

### Service life of filament bulb

Relative service life, luminous flux and power consumption at different service voltages.

It is generally true to say that bulbs for lower voltages give more light and have better vibration-withstand capability than bulbs for higher voltages.

### Service life



### Lamp comparison

Bulb type	Approx. service life (hours)	Shock and vibration immunity	High operating temperature	Low power consumption	Brightness
Filament	5000–10,000	+	+	+	+++
Neon	20,000	++	+++	+++	+
LED	25,000–50,000	+++	++	++	++
Very good	+++				
Good	++				
Less good	+				

### Transformer block

Suitable for bulb 6 or 24V and 1.2W and LED 24V.

Rated power  
Rated voltage  
Rated insulation voltage acc. to IEC  
70°C ( $\Delta T$ )

1.5 W  
See page 1.29  
Class E

### Bulbs

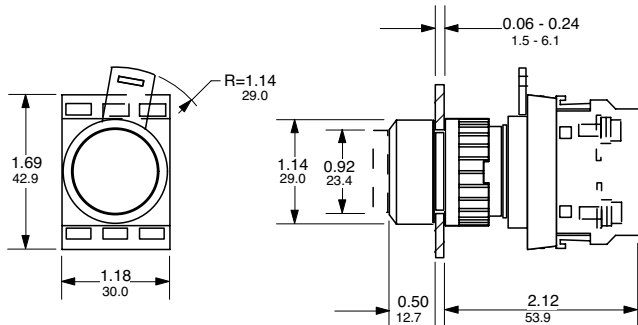
Voltage	Rated current, mA	Rated output, W (max)
<b>Filament type</b>		
6VAC/DC	200	1.2
12VAC/DC	100	1.2
24VAC/DC	50	1.2
30VAC/DC	40	1.2
48VAC/DC	42	2.0
60VAC/DC	20	1.2
130VAC/DC	15	2.0
<b>Neon type</b>		
220VAC	1.9	0.40
<b>LED type</b>		
12VDC	15	0.36
24VAC/DC	15	0.36
120VAC	6	0.72
130VAC/VDC	6	0.78
240VAC	4	0.96
<b>Flashing LED type</b>		
24VDC	25	0.60

① Contact blocks can be stacked maximum two deep.

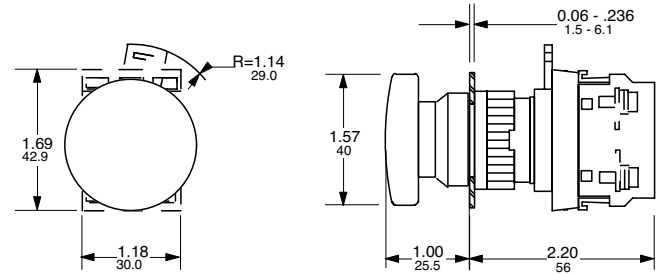
# Approximate dimensions

00.00 Inches  
00.00 [Millimeters]

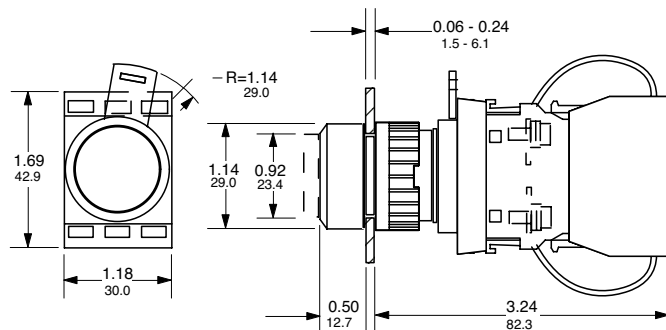
## Pushbutton and illuminated pushbutton



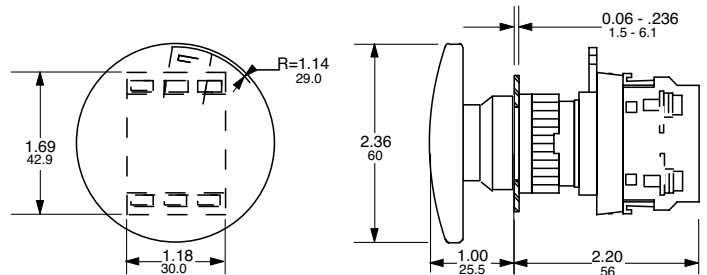
## Mushroom pushbutton — 40mm (Momentary)



## Illuminated pushbutton with transformer

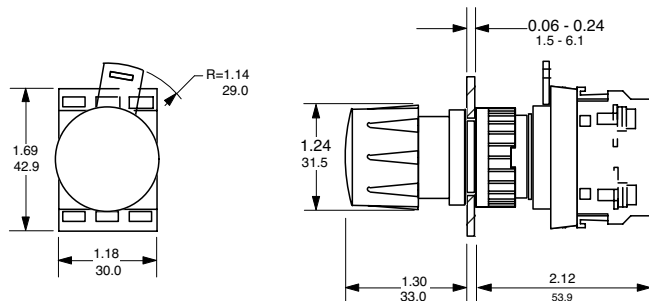


## Mushroom pushbutton — 60mm

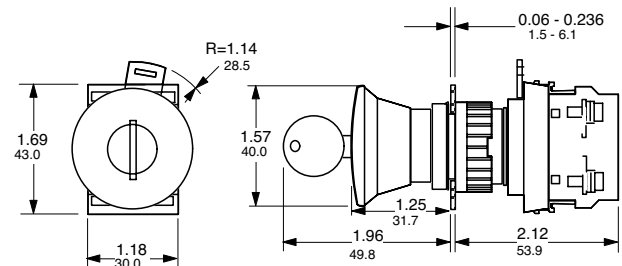


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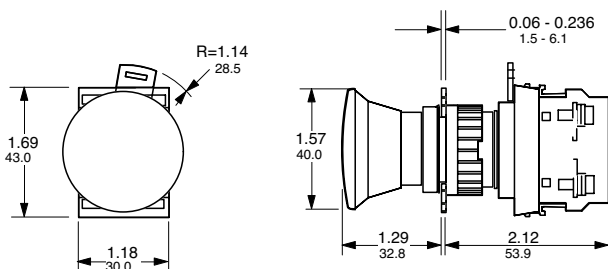
## Mushroom pushbutton — 30mm



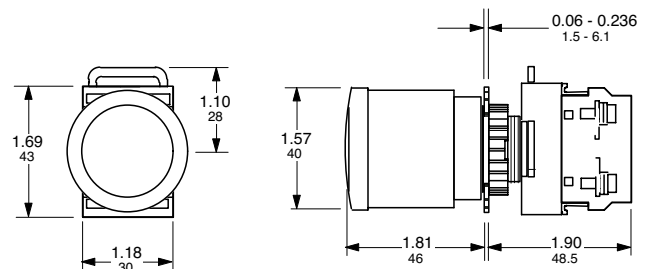
## Mushroom pushbutton — 40mm lockable



## Mushroom pushbutton — 40mm (Push-pull & twist release)



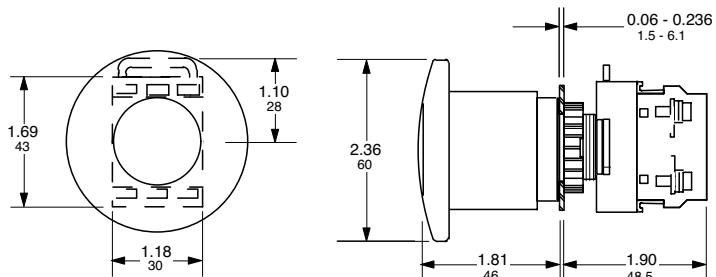
## Emergency stop pushbutton — 40mm



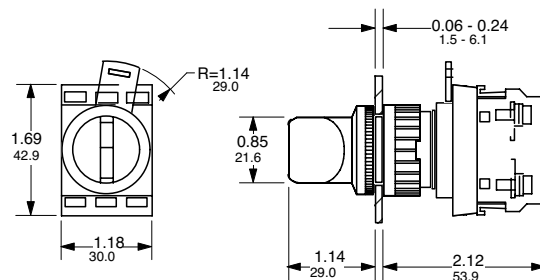
## Approximate dimensions

00.00 Inches  
00.00 [Millimeters]

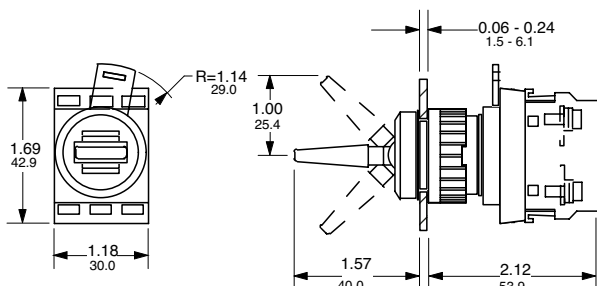
Emergency stop pushbutton — 60mm



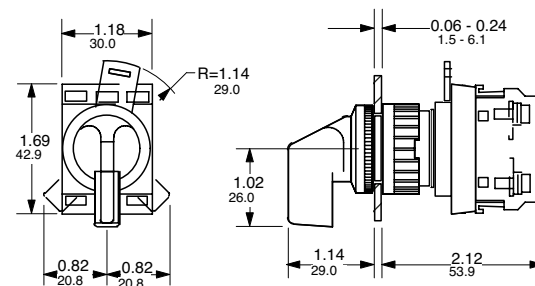
Selector switch — knob handle



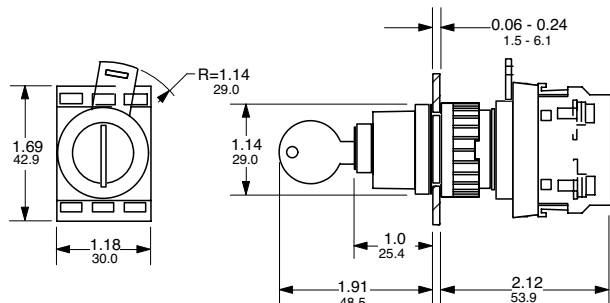
8 Toggle switch



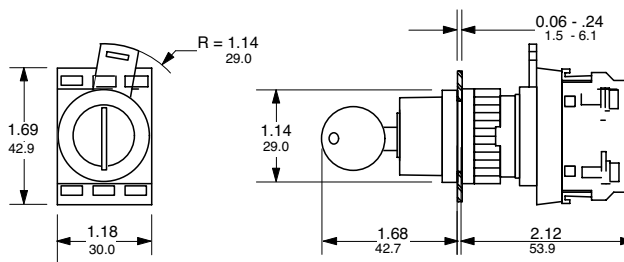
Selector switch — lever handle



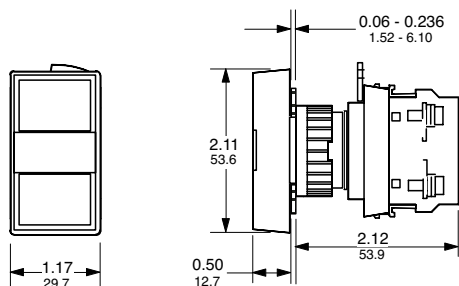
Key operated pushbutton



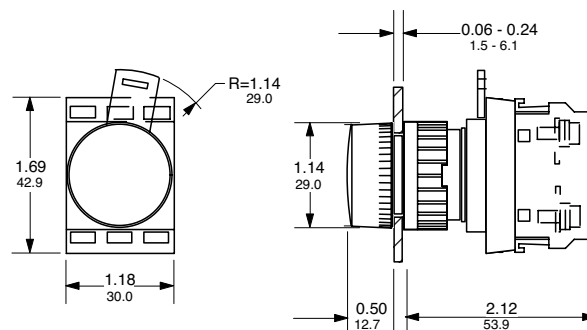
Selector switch — key operated



Two button pushbutton



Pilot light

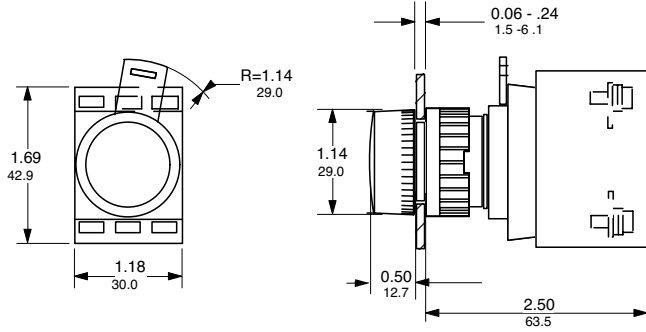


# Approximate dimensions

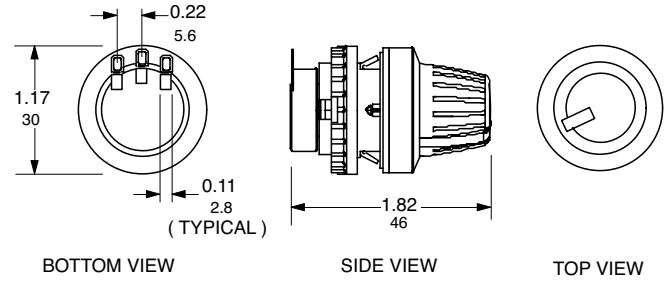
Pilot Devices  
Type CBK 22mm

00.00 Inches  
00.00 [Millimeters]

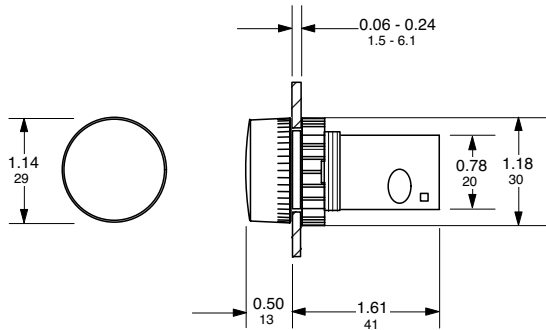
## Pilot light with transformer



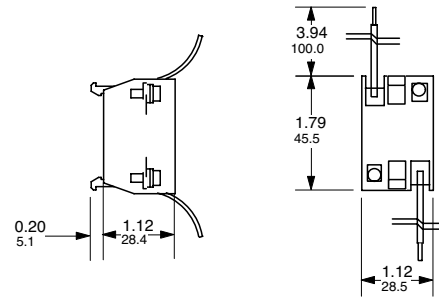
## Potentiometer



## Compact pilot light

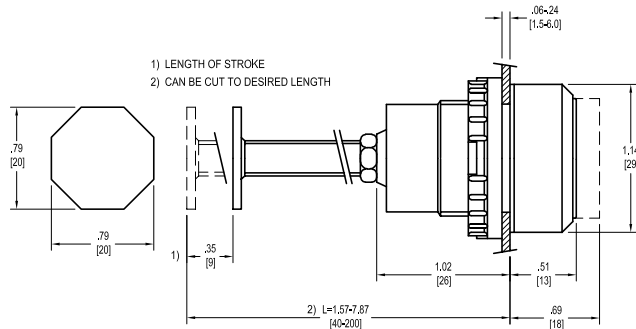


## Transformer block

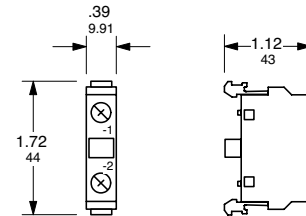


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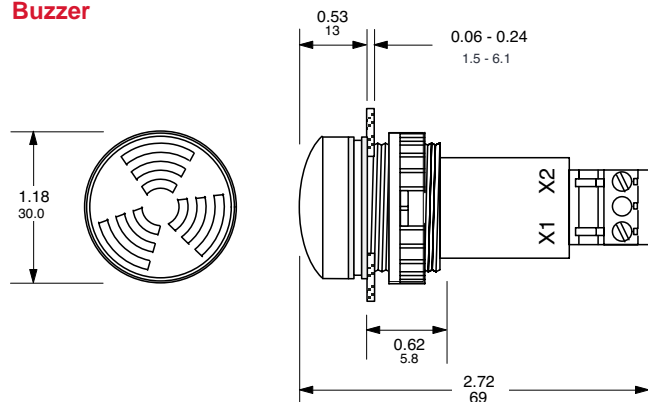
## Reset actuator



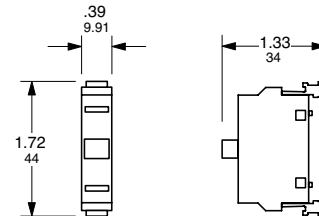
## Contact block – Operator mounted



## Buzzer



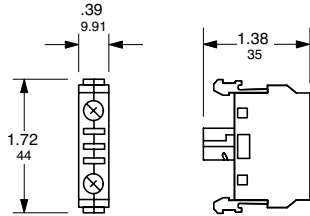
## Contact block – Base mounted



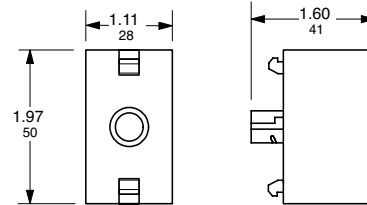
## Approximate dimensions

← 00.00 → Inches  
00.00 → [Millimeters]

### Lamp module – Operator mounted

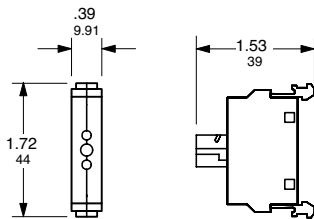


### Lamp module transformer

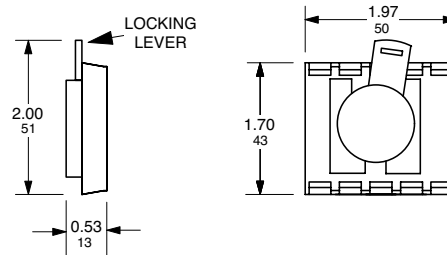


### Lamp module – Base mounted

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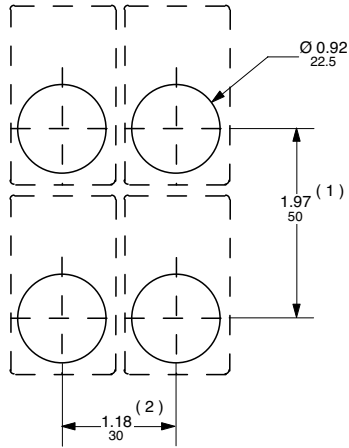
### 5 Contact block holder



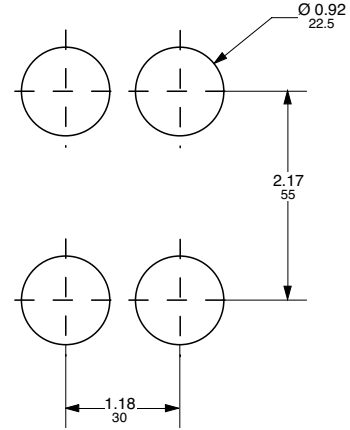
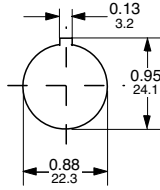
# Approximate dimensions

00.00      Inches  
00.00      [Millimeters]

## Nameplate drilling plans



Pushbuttons, switches & pilot lights



Double pushbuttons

(1) 2.16 /55mm when legend plate H= 1.75 / 44.4mm is used,  
2.40 /61mm for mushroom pushbutton with D = 60mm.

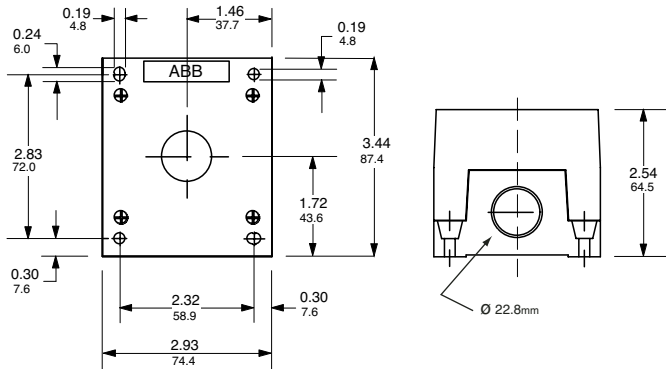
(2) 1.46 /37mm when legend plate with insert is used,  
1.97 /50mm when 5-block holder is used.  
Min. dimension = the diameter of mushroom  
button



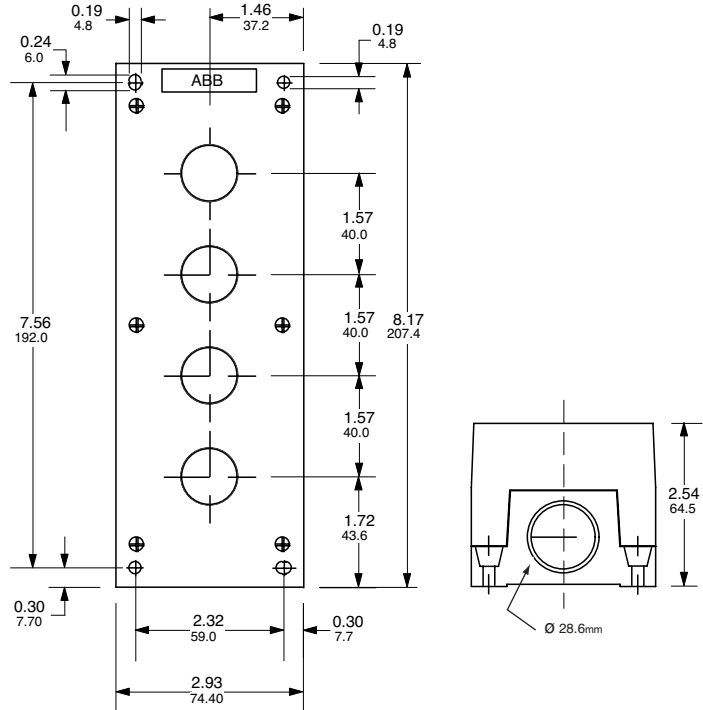
## Approximate dimensions Enclosures

00.00 Inches  
00.00 [Millimeters]

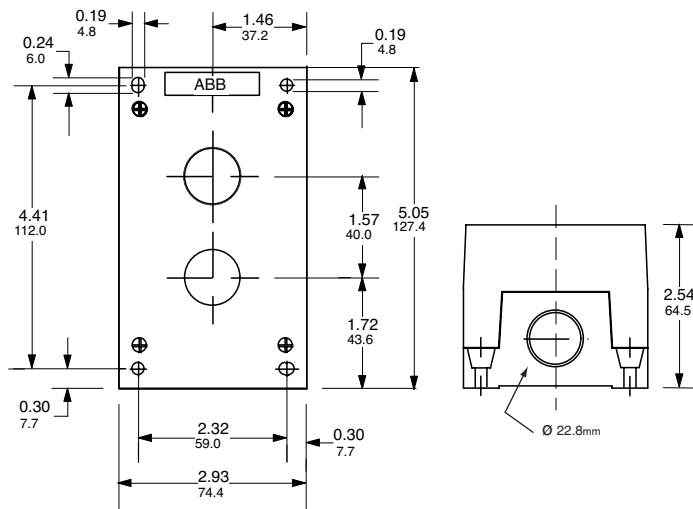
### 1 element



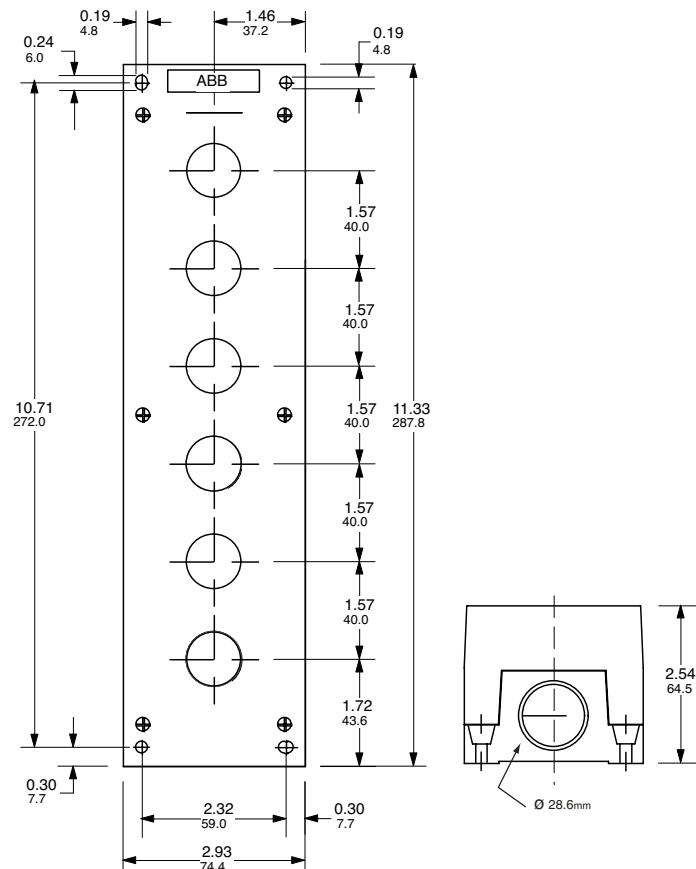
### 4 element



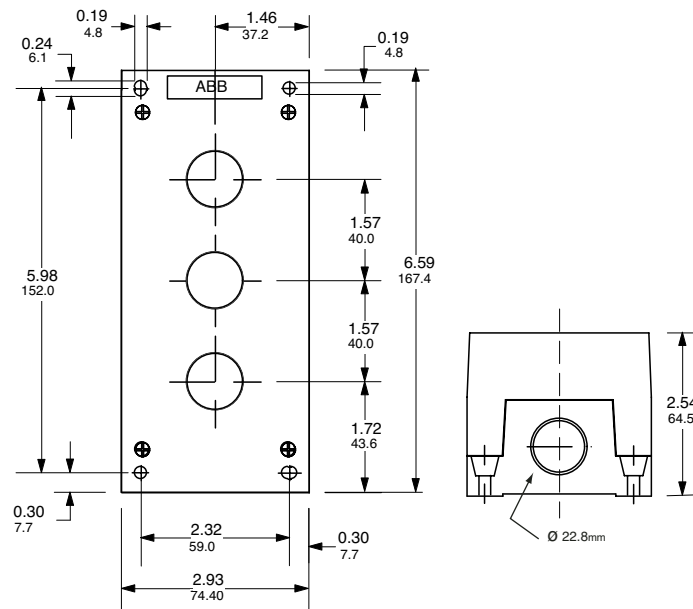
### 82 element



### 6 element



### 3 element



① One, two & three element pushbutton stations have knockouts for 1/2" conduit. Four & six element pushbutton stations have knockouts for 3/4" conduit.