

# MISCELLANEOUS HARDWARE & ACCESSORIES

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

|  |                  |
|--|------------------|
| <b>SWITCH HARDWARE.....</b>            | <b>D2 - D4</b>   |
| <b>PUSHBUTTON AND TOGGLE CAPS.....</b> | <b>D5 - D6</b>   |
| <b>SECURITY GUARDS.....</b>            | <b>D7 - D9</b>   |
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| <b>VL SERIES LED INDICATORS.....</b>   | <b>D15 - D16</b> |



# MISCELLANEOUS HARDWARE

**HEX NUT A112** Nickel plated brass  
1/4-40



**HEX NUT** Brass 1/4-40  
Nickel plated **U76** Matte black **U94**



**HEX NUT** Brass  
Nickel plated **U208** Matte black **U726**



**HEX NUT** Brass  
Chrome plated **U1916**



**HEX NUT U842** 10mm (.393")  
Nickel plated brass



**HEX NUT A465**  
Nickel plated brass 15/32-32



**HEX NUT** Brass 15/32-32  
Nickel plated **U162** Matte black **U41**  
Chrome plated **U92**



**HEX NUT** Brass 12mm (.472")  
Nickel plated **U166** Matte black **U183**  
Chrome plated **U212**



**HEX CAP NUT** Brass 12mm (.472")  
Chrome plated **U35**



**PAL NUT U42** 12mm (.472")  
Zinc plated steel



**HEX NUT 10-621** 16mm (.629")  
Nickel plated brass



**HEX NUT U1950-5** 19mm (.748")  
Nickel plated brass



**HEX NUT 10-855-5** 19mm (.748")  
Nickel plated brass



**HEX NUT U1951-5** 22mm (.866")  
Nickel plated brass



**HEX NUT 10-856-5** 22mm (.866")  
Nickel plated brass



**HEX NUT U2059-5** 24mm (.944")  
Nickel plated brass



**PANEL DRESS NUT A168P1**  
Blind thread, Nickel plated brass  
1/4-40



**PANEL DRESS NUT A168P2**  
Thru thread, Nickel plated brass  
1/4-40



**PANEL DRESS NUT A274**  
Nickel plated brass 1/4-40



**PANEL DRESS NUT A540**  
Nickel plated brass 15/32-32



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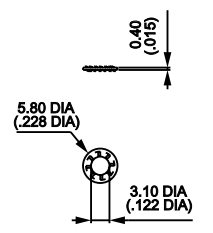
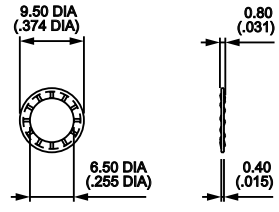
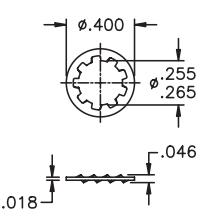
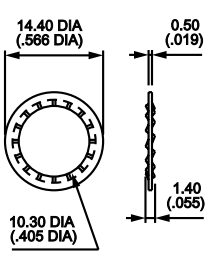
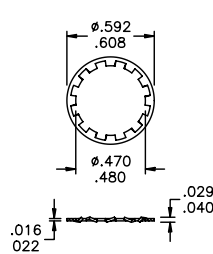
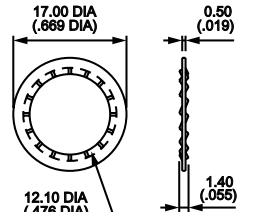
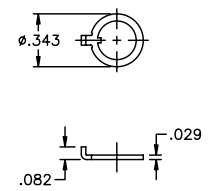
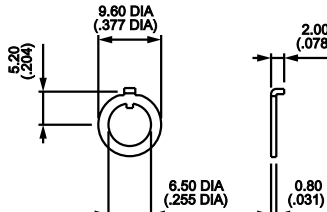
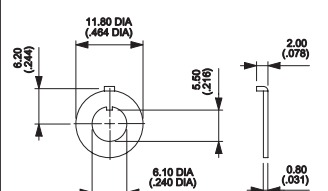
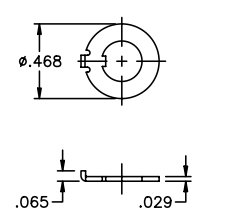
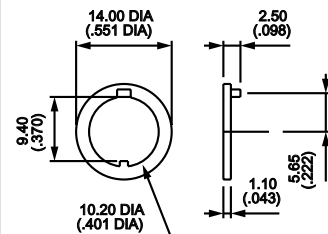
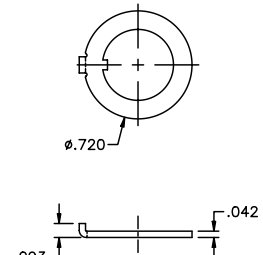
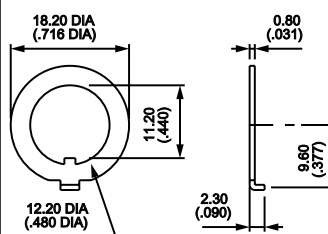
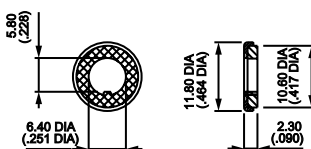
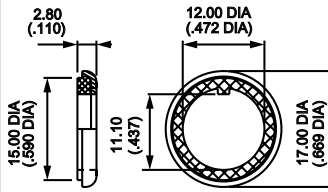
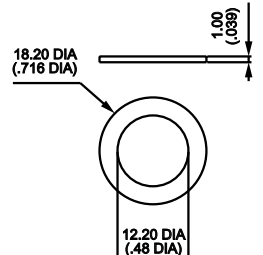
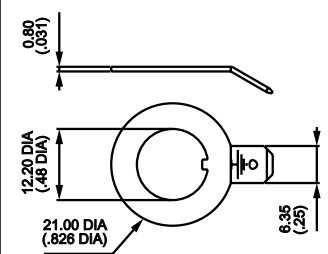
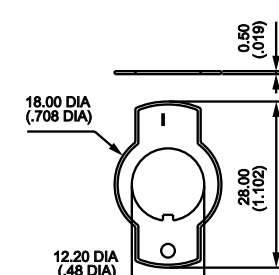
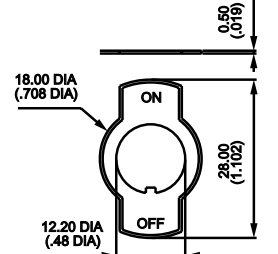
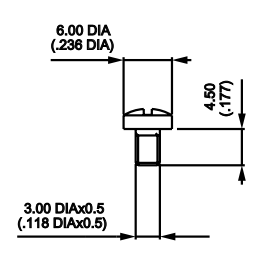
## MISCELLANEOUS HARDWARE (CONT'D.)

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

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|--|--|---|--|
| <p><b>DECORATIVE NUT A447</b><br/>Thru thread, chromium plated brass<br/>1/4-40</p>                           | <p><b>KNURLED NUT U369</b> 1/4-40<br/>Nickel plated brass</p>   | <p><b>KNURLED NUT U501</b> 1/4-40<br/>Chrome plated brass</p>   | <p><b>KNURLED NUT</b> Brass 1/4-40<br/>Nickel plated <b>U229</b> Matte black <b>U230</b></p>                  |
| <p><b>KNURLED NUT U826</b><br/>Nickel plated brass</p>    | <p><b>KNURLED CAP NUT</b> Brass 1/4-40<br/>Chrome plated <b>U216</b> Matte black <b>U218</b></p>    | <p><b>KNURLED CAP NUT</b> Brass<br/>Chrome pl. <b>U461</b> Matte black <b>U502</b></p>    | <p><b>KNURLED CAP NUT</b> Brass<br/>Chrome plated <b>U232</b></p>   |
| <p><b>KNURLED CAP NUT</b> Brass 1/4-40<br/>Chrome pl. <b>U268</b> Matte black <b>U725</b></p>                | <p><b>KNURLED NUT U2311</b> 10mm (.393")<br/>Chrome plated brass</p>   | <p><b>KNURLED CAP NUT U2220</b><br/>10mm (.393") Chrome plated brass</p>   | <p><b>KNURLED NUT</b> Brass 15/32-32<br/>Nickel plated <b>U53</b> Matte black <b>U1634</b></p>               |
| <p><b>KNURLED CAP NUT U123</b> 15/32-32<br/>Chrome plated brass</p>   | <p><b>KNURLED CAP NUT U124</b> 15/32-32<br/>Chrome plated brass</p>   | <p><b>PANEL DRESS NUT</b> Brass 12mm<br/>(.472") Nickel plated <b>U411</b>, Matte<br/>black <b>U413</b>, Chrome plated <b>U412</b></p>  | <p><b>KNURLED CAP NUT</b> Brass<br/>12mm (.472") Chrome plated <b>U117</b><br/>Matte black <b>U129</b></p>  |
| <p><b>KNURLED CAP NUT</b> Brass<br/>12mm (.472") Chrome plated <b>U118</b><br/>Matte black <b>U130</b></p>  | <p><b>INSULATED PANEL DRESS NUT</b><br/>12mm (.472") ABS or polyamide with<br/>glass fiber. blue <b>U521</b>, black <b>U522</b>,<br/>green <b>U523</b>, gray <b>U524</b>, yellow <b>U525</b>,<br/>red <b>U526</b>, white <b>U527/1</b>, orange <b>U529</b></p>  | <p><b>KNURLED NUT 10-960-5</b><br/>16mm (.629") Nickel plated brass</p>   | <p><b>KNURLED NUT U1977-5</b><br/>19mm (.748") Nickel plated brass</p>                                      |

## MISCELLANEOUS HARDWARE (CONT'D.)

|   |  |  |  |
|---|--|--|--|
| <p><b>LOCKWASHER U14</b> .122 I.D.<br/>Stainless steel</p>                                     | <p><b>LOCKWASHER 1/4</b><br/>Stainless steel <b>U215</b></p>              | <p><b>LOCKWASHER A115</b><br/>Nickel plated steel 1/4</p>        | <p><b>LOCKWASHER U843</b> 10mm (.393")<br/>Stainless steel</p>                      |
| <p><b>LOCKWASHER A466</b><br/>Nickel plated steel 15/32</p>                                    | <p><b>LOCKWASHER U13</b> 15/32<br/>Zinc plated</p>                        | <p><b>ANTI-ROTATE RING A107</b><br/>Nickel plated brass 1/4</p>  | <p><b>LOCKING RING 1/4</b><br/>Nickel plated <b>U78</b> Matte black <b>U93</b></p>  |
| <p><b>LOCKING RING</b> Brass<br/>Nickel plated <b>U198</b> Matte black <b>U728</b></p>         | <p><b>ANTI-ROTATE RING (LARGE) A158</b><br/>Nickel plated brass 1/4</p>  | <p><b>LOCKING RING U844</b> 10mm (.393")<br/>Nickel plated</p>  | <p><b>ANTI-ROTATE RING A482</b><br/>Nickel plated brass 15/32</p>                  |
| <p><b>LOCKING RING</b> 12mm (.472")<br/>Nickel plated <b>U121</b> Matte black <b>U12</b></p>  | <p><b>SEALING WASHER U360</b> 1/4-40<br/>For keyway bushing</p>         | <p><b>SEALING WASHER U60</b> 15/32</p>                         | <p><b>SEALING WASHER</b> Nylon<br/>12mm (.472") <b>U21</b></p>                    |
| <p><b>GROUND CONNECTOR</b><br/>12mm (.472") Nickel plated <b>U187</b></p>                     | <p><b>SWITCH PLATE I-O U1050</b><br/>.480 I.D.</p>                      | <p><b>SWITCH PLATE ON-OFF U19</b><br/>.480 I.D.</p>            | <p><b>CONNECTING SCREW U03</b></p>    |

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# MISCELLANEOUS PUSHBUTTON ACCESSORIES & CAPS

Note: additional caps are shown in some switch sections.

## PANEL DRESS NUTS & CAPS FOR PUSHBUTTON SWITCHES

| ASSEMBLY NUMBER | FITS SWITCH MODEL | OPTION(S) REQUIRED | INCLUDES  |        |
|-----------------|-------------------|--------------------|-----------|--------|
|                 |                   |                    | DRESS NUT | CAP    |
| A1354P1         | 810/820           | KM                 | A495P1    | B494P1 |
| A1354P2         | 401/402           | S                  | A495P1    | B494P2 |
| A1354P3         | PB                | PY                 | A495P1    | B494P3 |
| A1355P1         | 810/820           | KM                 | A495P2    | B494P1 |
| A1355P2         | 302               | NONE               | A495P2    | B494P2 |
| A1355P2         | 401/402           | NONE               | A495P2    | B494P2 |
| A1355P3         | PB                | PY or P2Y1         | A495P2    | B494P3 |



Order Assembly Number from chart to left. Add cap color no. from color code chart below. Example: A1354P36 indicates assembly to fit a PB switch and is supplied with a red cap.

| SWITCH MODEL | OPTION (IF REQ'D) | A1354 |      | A1355 |      |
|--------------|-------------------|-------|------|-------|------|
|              |                   | A     | P.T. | A     | P.T. |
| 810/820      | KM                | .040  | .062 | .090  | .093 |
| PB           | PY                | .100  | .125 | .135  | .171 |
| PB           | P2Y1              | -     | -    | .120  | .093 |
| 302          | -                 | -     | -    | .070  | .078 |
| 401/402      | -                 | -     | -    | .130  | .078 |
| 401/402      | S                 | .130  | .062 | -     | -    |



'A' dimension is determined by panel thickness indicated in table and allows for (1) back-up Nut A112 and (1) Lockwasher A115. Order these separately to provide for secure, vibration resistant mounting.

| PART NO. | A DIA. | B DIA. |
|----------|--------|--------|
| A495P1   | .385   | .323   |
| A495P2   | .413   | .245   |

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### COLOR CAP Vinyl plastisol



| PART NO. | DIM. A | FITS ACTUATOR |
|----------|--------|---------------|
| A118     | 5/16   | K             |
| A391     | 3/16   | L2            |
| A392     | 3/4    | L             |

### PUSHBUTTON CAPS (ALL)

Material - Nylon

Caps press fit adequately, however they may be pulled off. If permanent retention is required, cement with Loctite 405 or equivalent, insuring no cement enters switch.

### PUSHBUTTON CAP A212



FITS PB SERIES

### COLOR CAPS B366 & B497



**B366** fits 300 & 400 Series with S option only, and all PB Series.

**B497** fits 800 Series with options KM, KS, KM1, K1M1 & K2M1.

### PUSHBUTTON CAPS A180 & A496



**A180** fits all PB Series.

**A496** fits 800 Series with options KM, KS, KM1, K1M1, K2M, K2S & K2M1.

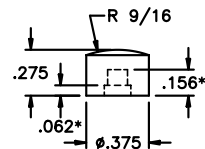
### PUSHBUTTON CAP A235



\* - fits all PB, 300 & 400 Series.

\*\* - fits 800 Series with options KM, KS, KM1 & K2M1.

### PUSHBUTTON CAP A420



\* - Fits all 300 Series except 301 & 305. Fits 301 & 305 with S option. Fits all 400 & PB Series.

\*\* - Fits 800 Series with options KM, KS, KM1 & K2M1.

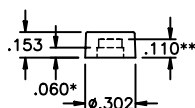
### STANDARD COLOR CODE

For nylon caps, actuators, bezels & bezel inserts. To specify, add selected color code to part number. Example: A2122 is a black A212 Cap. To specify for actuators, bezels and bezel inserts, see 'Order Format' section following specific series information in this catalog.

| Code | Color  | Code | Color |
|------|--------|------|-------|
| 1    | blue   | 2    | black |
| 3    | green  | 4    | gray  |
| 5    | yellow | 6    | red   |
| 7    | ivory  | 8    | white |
| 9    | orange |      |       |

# MISCELLANEOUS PUSHBUTTON ACCESSORIES & CAPS (CONT'D.)

## COLOR CAP B494



\*\* - P1 fits all 800 Series except K1M & K1S.

\* - P2 fits all 300 & 400 Series.

\* - P3 fits all PB Series.

## PUSHBUTTON CAP A631



\* - Fits all 300 Series except 301 & 305. Fits 301 & 305 with S option. Fits all 400 & PB Series.

\*\* - Fits 800 Series with options KM, KS, KM1 & K2M1.

## PUSHBUTTON CAP A632



Fits all PB Series.

## CUSTOM MARKING

Permanent ink marking is available for switch caps, bezels and rocker actuators. Consult factory with your special requirement. Representative samples available.

## SWITCH GUARDS

Materials: 5056-H18 aluminum with clear or black anodize, or free machining brass with bright chrome plate. Dimensions in inches and (millimeters). Tolerances: A & D,  $\pm .015$ " B & C,  $\pm .005$ "

| MODEL  | TH'D.  | COLOR       | FINISH  | A           | B           | C          | D          |
|--------|--------|-------------|---------|-------------|-------------|------------|------------|
| MG11A  | 10-48  | NATURAL AL. | PLAIN   |             |             |            |            |
| MG11B  | 10-48  | BLACK AL.   | PLAIN   |             |             |            |            |
| MG12A  | 1/4-40 | NATURAL AL. | PLAIN   |             |             |            |            |
| MG12B  | 1/4-40 | BLACK AL.   | PLAIN   | .530 (13.5) | .413 (10.5) | .315 (8.0) | .236 (6.0) |
| MG12C  | 1/4-40 | CHROMED BR. | PLAIN   |             |             |            |            |
| MG12KA | 1/4-40 | NATURAL AL. | KNURLED |             |             |            |            |
| MG12KB | 1/4-40 | BLACK AL.   | KNURLED |             |             |            |            |
| MG12KC | 1/4-40 | CHROMED BR. | KNURLED |             |             |            |            |
| MG13A  | 1/4-40 | NATURAL AL. | PLAIN   |             |             |            |            |
| MG13B  | 1/4-40 | BLACK AL.   | PLAIN   | .730 (18.5) | .610 (15.5) | .315 (8.0) | .236 (6.0) |
| MG13C  | 1/4-40 | CHROMED BR. | PLAIN   |             |             |            |            |



## STANDARD COLOR CODE

For nylon caps, actuators, bezels & bezel inserts. To specify, add selected color code to part number. Example: A2122 is a black A212 Cap. To specify for actuators, bezels and bezel inserts, see 'Order Format' section following specific series information in this catalog.

| Code | Color  | Code | Color |
|------|--------|------|-------|
| 1    | blue   | 2    | black |
| 3    | green  | 4    | gray  |
| 5    | yellow | 6    | red   |
| 7    | ivory  | 8    | white |
| 9    | orange |      |       |

## CAPS FOR PRINTED CIRCUIT BOARD PROCESSING

Available on models with plain bushing. Supplied mounted on switches or separately. Provides additional protection during pcb processing.

| Outline | Series | Material | Part No. |
|---------|--------|----------|----------|
|         | S      | Vinyl    | U3012    |
|         | TP     | Vinyl    | U3502    |

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# SECURITY GUARDS for switch series 12000, 3500, 600H and 6000

## FEATURES

- Security guards prevent inadvertent switch operation.
- When guard cap is raised, switch actuator operates freely.
- When guard cap is depressed, switch actuator is locked in set position.
- Designed for use on switches with 11.9mm (.468") or 12mm (.472") dia. threaded bushings and actuator length 17.5mm (.688") outside bushing .
- Adjust guard for correct switch operation with 2 nuts.



## MATERIALS

Support plate: Matte black steel  
Cap: Thermoset plastic

### Series 20 - for 2 position switches

Actuator returned then locked in down position (OFF)

| MODEL NO. | COLOR                |
|-----------|----------------------|
| 22        | Gray                 |
| 23        | White                |
| 24        | Orange               |
| 25        | Black                |
| 26        | Red                  |
| 27        | Green                |
| 28        | Yellow               |
| 25/28     | Black/yellow striped |



### Series 30 - for 3 position switches

Actuator returned then locked in upper position

| MODEL NO. | COLOR                |
|-----------|----------------------|
| 32        | Gray                 |
| 33        | White                |
| 34        | Orange               |
| 35        | Black                |
| 36        | Red                  |
| 37        | Green                |
| 38        | Yellow               |
| 39        | Yellow               |
| 35/38     | Black/yellow striped |



### Series 40 - for 2 position switches

Actuator returned then locked in upper position

| MODEL NO. | COLOR                |
|-----------|----------------------|
| 42        | Gray                 |
| 43        | White                |
| 44        | Orange               |
| 45        | Black                |
| 46        | Red                  |
| 47        | Green                |
| 48        | Yellow               |
| 49        | Blue                 |
| 45/48     | Black/yellow striped |



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# SECURITY GUARDS for switch series 12000, 3500, 600H and 6000

## Series 50 - for 2 position switches

Actuator returned then locked in down position (OFF)

| MODEL NO. | COLOR                |
|-----------|----------------------|
| 52        | Gray                 |
| 53        | White                |
| 54        | Orange               |
| 55        | Black                |
| 56        | Red                  |
| 57        | Green                |
| 58        | Yellow               |
| 59        | Blue                 |
| 55/58     | Black/yellow striped |



## Series 60 - for 3 position switches

Actuator returned then locked in upper position

| MODEL NO. | COLOR                |
|-----------|----------------------|
| 62        | Gray                 |
| 63        | White                |
| 64        | Orange               |
| 65        | Black                |
| 66        | Red                  |
| 67        | Green                |
| 68        | Yellow               |
| 69        | Blue                 |
| 65/68     | Black/yellow striped |



## Series 70 - for 2 position switches

Actuator returned then locked in upper position

| MODEL NO. | COLOR                |
|-----------|----------------------|
| 72        | Gray                 |
| 73        | White                |
| 74        | Orange               |
| 75        | Black                |
| 76        | Red                  |
| 77        | Green                |
| 78        | Yellow               |
| 79        | Yellow               |
| 75/78     | Black/yellow striped |



## Series 20PN - for 2 position switches

Actuator returned then locked in down position (OFF)  
Option P - holes for wiring seal standard on this model

| MODEL NO. | COLOR  |
|-----------|--------|
| 22PN      | Gray   |
| 23PN      | White  |
| 24PN      | Orange |
| 25PN      | Black  |
| 26PN      | Red    |
| 27PN      | Green  |
| 28PN      | Yellow |
| 29PN      | Blue   |



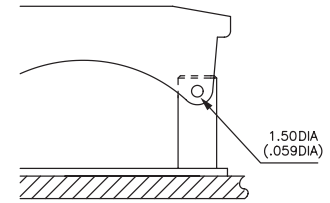
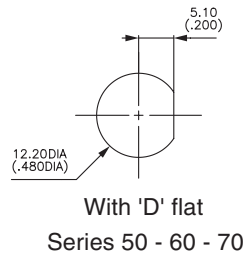
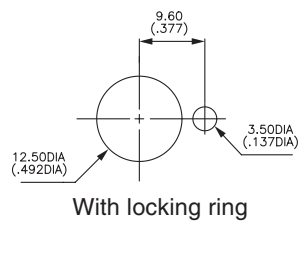
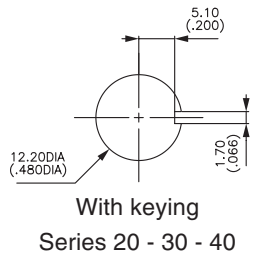
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SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE



# SECURITY GUARDS for switch series 12000, 3500, 600H and 6000

## PANEL CUT-OUTS & OPTIONS



**P** Holes for wiring seal

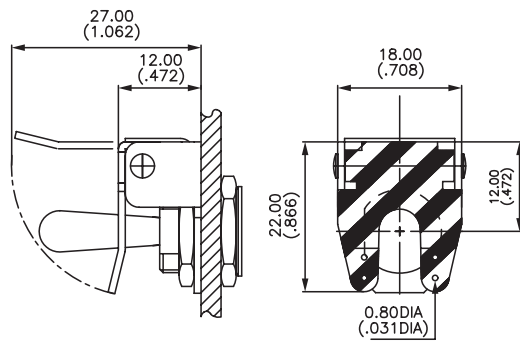
Cap engraving available - consult factory.

Other locking configurations such as locked center position available - consult factory.

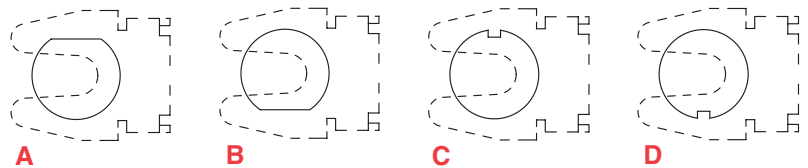
## SECURITY GUARDS for switch series 3500, 600H and 6000

### Series 90

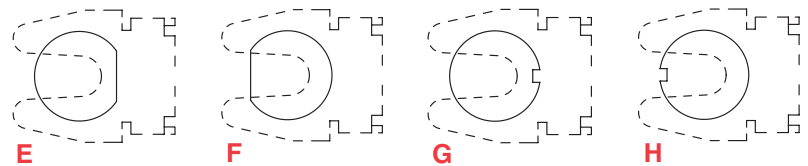
Actuator locked in center position



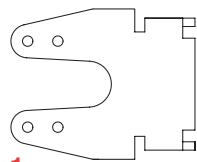
### Bushing shapes - for standard products



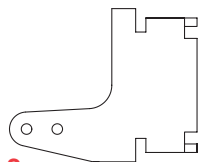
### - for other products



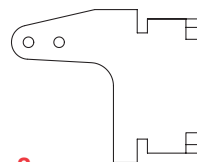
### Security guard cap shape



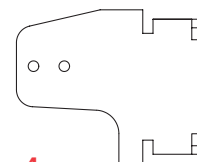
**1**  
Locks in center position



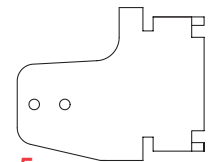
**2**  
Prevents down position



**3**  
Prevents up position



**4**  
Locks in down position



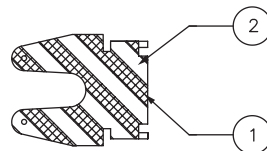
**5**  
Locks in up position

### Security guard cap colors

| OPTION | COLOR                          |
|--------|--------------------------------|
| 1      | Blue                           |
| 2      | Black                          |
| 3      | Green                          |
| 4      | Gray                           |
| 5      | Yellow                         |
| 6      | Red                            |
| 7/1    | White                          |
| 9      | Orange                         |
| 0      | Striped (see color of stripes) |

### Color of stripes

| OPTION | STRIPE 1 | STRIPE 2 |
|--------|----------|----------|
| A      | Red      | Black    |
| B      | Yellow   | Black    |
| C      | Red      | White    |
| D      | White    | Black    |



### How to order

Series Bushing shape Cap shape Cap color Color of stripes



Fill in boxes by making selections from each category indicated.

Example of completely specified model number:

**90A10B**

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

**D**

# SEALING BOOTS FOR SWITCHES

## FEATURES

- Prevents dust, sand and water from entering switches.
- Prevents ice from blocking actuator movement on toggle switches.
- Compatible with internally sealed toggle and pushbutton actuators.
- Available in a wide range of colors .
- Each boot is supplied with a sealing ring or washer.

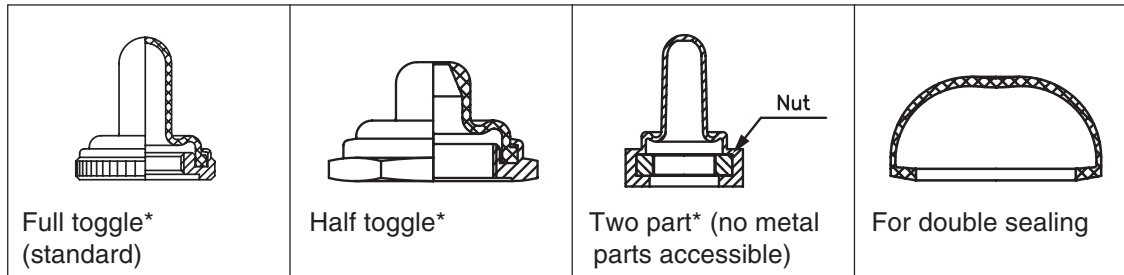
## MATERIALS AND SPECIFICATIONS

**Boot material:** Neoprene or silicone (see comparative advantages below)  
**Nut material:** Nickel plated or matte black finished brass  
**Operating temperature:** Neoprene; -20°C to 50°C    -40°C to 85°C

| Comparative Advantages | Temperature Range |           | Elasticity | Mechanical Resistance |
|------------------------|-------------------|-----------|------------|-----------------------|
|                        | Low               | High      |            |                       |
| Silicone               | Excellent         | Excellent | Excellent  | Poor                  |
| Neoprene               | Poor              | Good      | Poor       | Excellent             |

## TYPES OF BOOTS - CROSS SECTIONS

\* Color options available



## EXAMPLES OF MOUNTING



## For toggle bushing 6 x 0.75 (.236 x 0.75) - 5500 series



| NUT                             | FULL TOGGLE SILICONE BOOTS |         |         |         |
|---------------------------------|----------------------------|---------|---------|---------|
|                                 | Black                      | Red     | Green   | White   |
| <b>Knurled</b><br>Nickel plated | U1341                      | U1341-6 | U1341-3 | U1341-7 |
| <b>Knurled</b><br>Matte black   | U1343                      | U1343-6 | U1343-3 | U1343-7 |
| <b>Hex</b><br>Nickel plated     | U1302                      | U1302-6 | U1302-3 | U1302-7 |
| <b>Hex</b><br>Matte black       | U1304                      | U1304-6 | U1304-3 | U1304-7 |

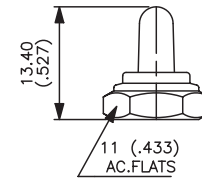


# SEALING BOOTS FOR SWITCHES

## For toggle bushing 6,35-40NS (1/4-40NS) - 5000 and 11000 series



| NUT                             | FULL TOGGLE SILICONE BOOTS |         |         |         |
|---------------------------------|----------------------------|---------|---------|---------|
|                                 | Black                      | Red     | Green   | White   |
| <b>Knurled</b><br>Nickel plated | U1331                      | U1331-6 | U1331-3 | U1331-7 |
| <b>Knurled</b><br>Matte black   | U1333                      | U1333-6 | U1333-3 | U1333-7 |
| <b>Hex</b><br>Nickel plated     | U1229                      | U1229-6 | U1229-3 | U1229-7 |
| <b>Hex</b><br>Matte black       | U1231                      | U1231-6 | U1231-3 | U1231-7 |

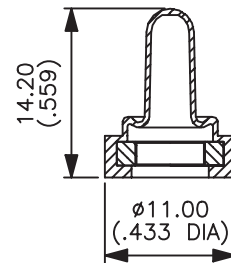


## For toggle bushing 6,35-40NS (1/4-40NS) - 5000 and 11000 series



| NUT | SILICONE BOOTS (supplied as 2 separate parts) |         |         |         |
|-----|---|---------|---------|---------|
|     | Black   | Red     | Green   | White   |
|     | U5149   | U5149-6 | U5149-3 | U5149-7 |

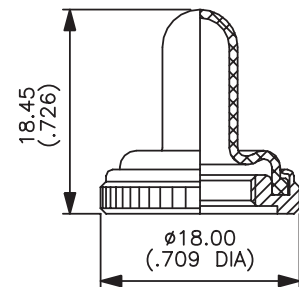
When boot is mounted onto panel, metal parts of switch are completely covered by insulation.



## For toggle bushing 10 x 0.75 (.393 x 0.75) - 10600 series



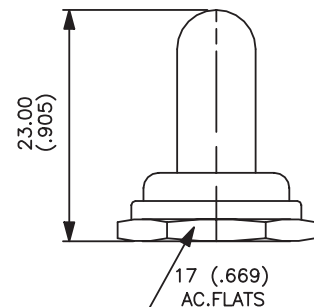
| KNURLED NUT   | FULL TOGGLE SILICONE BOOTS |         |         |         |
|---------------|----------------------------|---------|---------|---------|
|               | Black                      | Red     | Green   | White   |
| Nickel plated | U1612                      | U1612-6 | U1612-3 | U1612-7 |
| Matte black   | U1614                      | U1614-6 | U1614-3 | U1614-7 |



## For toggle bushing 11,9-32 (15/32-32NS) - 12000, 3500 and 6000 series



| HEX NUT       | FULL TOGGLE SILICONE BOOTS |         |         |         |
|---------------|----------------------------|---------|---------|---------|
|               | Black                      | Red     | Green   | White   |
| Nickel plated | U1031                      | U1031-6 | U1031-3 | U1031-7 |
| Matte black   | U1024                      | U1024-6 | U1024-3 | U1024-7 |



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# SEALING BOOTS FOR SWITCHES

For toggle bushing 11,9-32NS (15/32-32NS) - 12000, 3500 and 6000 series



| HEX NUT       | HALF TOGGLE SILICONE BOOTS |         |         |         |
|---------------|----------------------------|---------|---------|---------|
|               | Black                      | Red     | Green   | White   |
| Nickel plated | U1600                      | U1600-6 | U1600-3 | U1600-7 |
| Matte black   | U1602                      | U1602-6 | U1602-3 | U1602-7 |



D

For toggle bushing 12 X 0.75 SI (.472 X 0.75 IS) - 4450, 4650 and 1600 series



| HEX NUT       | FULL TOGGLE BLACK NEOPRENE BOOTS |
|---------------|----------------------------------|
| Nickel plated | U09                              |
| Matte black   | U223                             |



For toggle bushing 12 x 0.75 SI (.472 x 0.75 IS) - 400, 500, 600H, 6-600H, 600SH, 660, 1000, 1500 and 3600 series



| HEX NUT       | FULL TOGGLE SILICONE BOOTS       |         |         |         |
|---------------|----------------------------------|---------|---------|---------|
|               | Black                            | Red     | Green   | White   |
| Nickel plated | U1565                            | U1565-6 | U1565-3 | U1565-7 |
| Matte black   | U1567                            | U1567-6 | U1567-3 | U1567-7 |
|               | FULL TOGGLE BLACK NEOPRENE BOOTS |         |         |         |
| Nickel plated | U851                             |         |         |         |
| Matte black   | U853                             |         |         |         |



For toggle bushing 12 x 0.75 SI (.472 x 0.75 IS) - 400, 500, 600H, 6-600H, 660, 1000 and 3600 series



| HEX NUT       | HALF TOGGLE SILICONE BOOTS       |         |         |         |
|---------------|----------------------------------|---------|---------|---------|
|               | Black                            | Red     | Green   | White   |
| Nickel plated | U1151                            | U1151-6 | U1151-3 | U1151-7 |
| Matte black   | U1153                            | U1153-6 | U1153-3 | U1153-7 |
|               | HALF TOGGLE BLACK NEOPRENE BOOTS |         |         |         |
| Nickel plated | U598                             |         |         |         |
| Matte black   | U600                             |         |         |         |



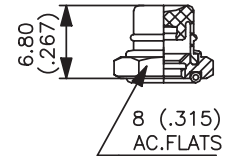
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

# SEALING BOOTS FOR SWITCHES

For pushbutton bushing 4 x 0.70 (.157 x 0.70) - 9500 series



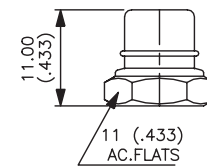
| HEX NUT       | PUSHBUTTON SILICONE BOOTS |         |         |         |
|---------------|---------------------------|---------|---------|---------|
|               | Black                     | Red     | Green   | White   |
| Nickel plated | U1829                     | U1829-6 | U1829-3 | U1829-7 |
| Matte black   | U1831                     | U1831-6 | U1831-3 | U1831-7 |



For pushbutton bushing 6,35-40NS (1/4-40NS) - 18000, 9000 and 13000 series



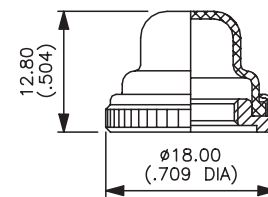
| NUT                             | PUSHBUTTON SILICONE BOOTS |         |         |         |
|---------------------------------|---------------------------|---------|---------|---------|
|                                 | Black                     | Red     | Green   | White   |
| <b>Knurled</b><br>Nickel plated | U1401                     | U1401-6 | U1401-3 | U1401-7 |
| <b>Knurled</b><br>Matte black   | U1403                     | U1403-6 | U1403-3 | U1403-7 |
| <b>Hex</b><br>Nickel plated     | U1318                     | U1318-6 | U1318-3 | U1318-7 |
| <b>Hex</b><br>Matte black       | U1320                     | U1320-6 | U1320-3 | U1320-7 |



For pushbutton bushing 10 x 0.75 (.393 x 0.75) - 10400 series



| KNURLED NUT   | PUSHBUTTON SILICONE BOOTS |         |         |         |
|---------------|---------------------------|---------|---------|---------|
|               | Black                     | Red     | Green   | White   |
| Nickel plated | U1624                     | U1624-6 | U1624-3 | U1624-7 |
| Matte black   | U1626                     | U1626-6 | U1626-3 | U1626-7 |



For pushbutton bushing 11,9-32NS (15/32-32NS) - 13000X778 and 13000X768 series



| HEX NUT       | PUSHBUTTON SILICONE BOOTS |        |        |        |
|---------------|---------------------------|--------|--------|--------|
|               | Black                     | Red    | Green  | White  |
| Nickel plated | U589                      | U589-6 | U589-3 | U589-7 |
| Matte black   | U590                      | U590-6 | U590-3 | U590-7 |



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

D

# SEALING BOOTS FOR SWITCHES

For pushbutton bushing 12 x 0.75 SI (.472 x 0.75) - 1200, 4700 and 4800 series



| HEX NUT       | PUSHBUTTON SILICONE BOOTS       |         |         |         |
|---------------|---------------------------------|---------|---------|---------|
|               | Black                           | Red     | Green   | White   |
| Nickel plated | U1654                           | U1654-6 | U1654-3 | U1654-7 |
| Matte black   | U1656                           | U1656-6 | U1656-3 | U1656-7 |
|               | PUSHBUTTON BLACK NEOPRENE BOOTS |         |         |         |
| Nickel plated | U31                             |         |         |         |
| Matte black   | U225                            |         |         |         |
| Chrome plated | U224                            |         |         |         |



D

For double sealing IP series



**TRANSPARENT SILICONE BOOT**  
U5125



For external sealing on A02 series

**SILICONE BOOT**  
A02WPC



For 2600 series rocker switches



**TRANSPARENT SILICONE BOOT**  
U2150



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

# VL SERIES LED INDICATORS

## FEATURES

- Indicators with red, yellow or green built-in LED.
- Flatted bushing for anti-rotation.
- 2 bushing diameters: 6mm (.236") and 8mm (.314").
- Sealed and unsealed models.
- Bright chrome or matte black plated finishes.

## SPECIFICATIONS

|                                       |  |
|---------------------------------------|--|
| Insulation resistance:                | 1000 megohms min.                        |
| Dielectric strength:                  | 250 Vrms, 50 Hz min.                     |
| Electric life at high temperature:    | 72 hours at 85°C                         |
| Torque:                               | 1.25 Nm (.922 ft.lb.) max.applied to nut |
| Climatic category:                    | 40/085/21                                |
| Protection level (sealed models):     | IP67 per IEC 529                         |
| In accordance with NFC 93680 standard |  |

## LED SPECIFICATIONS

(T ambient = 25°C)

|                         |                       |
|-------------------------|-----------------------|
| Forward voltage:        | 2VDC ( $\leq 2.6V$ )  |
| Nominal current:        | 10mA                  |
| Max. surge current:     | 0.5 A (tp<10 $\mu$ s) |
| Max. reversed voltage:  | 25V                   |
| Max. forward current:   | 40mA                  |
| Max. power dissipation: | 100mW                 |

## MATERIALS

|                            |   |
|----------------------------|---|
| <b>Bushing and collar:</b> | Brass, bright or matte black chrome plated  |
| <b>Lens:</b>               | Polycarbonate   |
| <b>Hardware supplied:</b>  | 1 nickel plated brass hex nut; 9mm (.354") across flats for 6mm (.236") dia. indicator or 10mm (.393") across flats for 8mm (.314") dia. indicator. |

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

D

### 6mm (.236") diameter - unsealed



| LED COLOR | BRIGHT FINISH | MATTE BLACK FINISH |
|-----------|---------------|--------------------|
| Red       | VL1000P600    | VL100GP600         |
| Yellow    | VL1000P500    | VL100GP500         |
| Green     | VL1000P300    | VL100GP300         |

Note: Bright finish is standard.

Arrow indicates bushing flat. Option: bushing without flat and lockwasher- on request



### 8mm (.314") diameter - unsealed



| LED COLOR | BRIGHT FINISH | MATTE BLACK FINISH |
|-----------|---------------|--------------------|
| Red       | VL3000P600    | VL300GP600         |
| Yellow    | VL3000P500    | VL300GP500         |
| Green     | VL3000P300    | VL300GP300         |

Note: Bright finish is standard.

Arrow indicates bushing flat. Option: bushing without flat and lockwasher- on request



# VL SERIES LED INDICATORS

## 6mm (.236") diameter - sealed



| LED COLOR | BRIGHT FINISH | MATTE BLACK FINISH |
|-----------|---------------|--------------------|
| Red       | VL1CK0P600    | VL1CKGP600         |
| Yellow    | VL1CK0P500    | VL1CKGP500         |
| Green     | VL1CK0P300    | VL1CKGP300         |

Notes: Bright finish is standard. Lens cap is the same color as the LED.

Arrow indicates bushing flat. Option: bushing without flat and lockwasher- on request



D

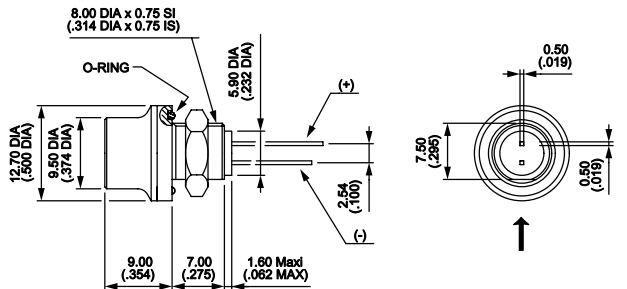
## 8mm (.314") diameter - sealed



| LED COLOR | BRIGHT FINISH | MATTE BLACK FINISH |
|-----------|---------------|--------------------|
| Red       | VL3CK0P600    | VL3CKGP600         |
| Yellow    | VL3CK0P500    | VL3CKGP500         |
| Green     | VL3CK0P300    | VL3CKGP300         |

Note: Bright finish is standard. Lens cap is the same color as the LED.

Arrow indicates bushing flat. Option: bushing without flat and lockwasher- on request

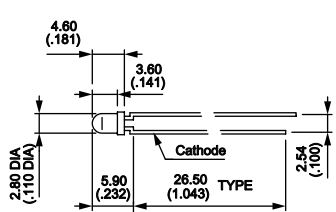


## LED'S

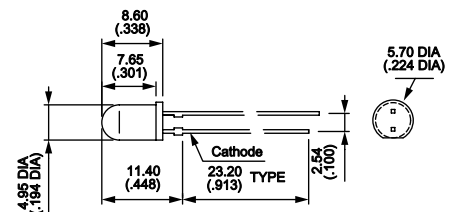
Observe polarity of DC supply to LED's. Longer lead is anode (+). Shorter lead is cathode (-) on flat side of bushing (see drawing).

LED's are not removable.

LED's per customer specifications that meet drawings shown can be supplied - consult factory.



For 6mm (.236") indicators

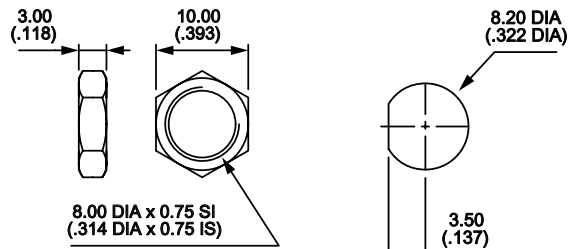


For 8mm (.314") indicators

## STANDARD HARDWARE AND PANEL CUT-OUTS



For 6mm (.236") indicators



For 8mm (.314") indicators

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Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

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