



# APM HEXSEAL

## Sealing Specialists



APM HEXSEAL was founded in 1947 with the mission to develop and manufacture environmental sealing solutions to protect and prolong the life of electromechanical switches and circuit breakers in hostile environmental conditions around the globe. This focused effort resulted in the development of an extensive line of standard silicone sealing boots that are compatible with the vast majority of switches, breakers, encoders, potentiometers and rotary devices used throughout the world today.



Complimentary sealing products were soon developed and patented, including a complete line of reusable, self-sealing fasteners, and silicone colorizing incandescent lamp filters that transmit colors for instrument panels and lighted pushbutton switches.



Drawing upon our experience with precision transfer and compression molding using a wide range of elastomers, rubber-to-metal bonding and coating treatments, APM Hexseal's Custom Design Department offers an efficient method to develop your custom sealing needs,

### Sealing Boots & Bushings

- ◆ Switch and Potentiometer Boots
- ◆ Circuit Breaker Boots
- ◆ Specialty Bushing Seals
- ◆ Custom Elastomeric Sealing Solutions

### Self-Sealing Hardware

- ◆ SEELSKREW® Self-Sealing Screws
- ◆ SEELBOLT® Self-Sealing Bolts
- ◆ SEELNUT® Molded Self-Sealing Nuts
- ◆ SEELOC® Molded Sealing Washers



from concept all the way to production.



**“APM Hexseal has a solution looking for your problem.”**



ISO 9001:2015 Registered



(800) 498-9034  
www.apmhexseal.com

# APM Hexseal Boots for Toggle, Pushbutton & Rotary Switches

Any unsealed electrical devices mounted to a control panel or piece of electrical equipment can fall victim to the impacts of hostile environmental factors if not properly protected. In this context, "environmental" is a very broad term, encompassing any number of possible factors, including weather conditions like rain, snow or prolonged wind and sun exposure, pressure changes from submersion in fluids or changes in altitude, contaminants such as water, ice, salt, air, dust, dirt, grease, chemicals, and even spilled beverages.

APM Hexseal's Sealing Boots are designed to protect the vulnerable areas of a device, and create a seal against the mounting panel, providing strong protection for the device itself, and for the overall function of the system.

### MATERIAL SPECIFICATIONS

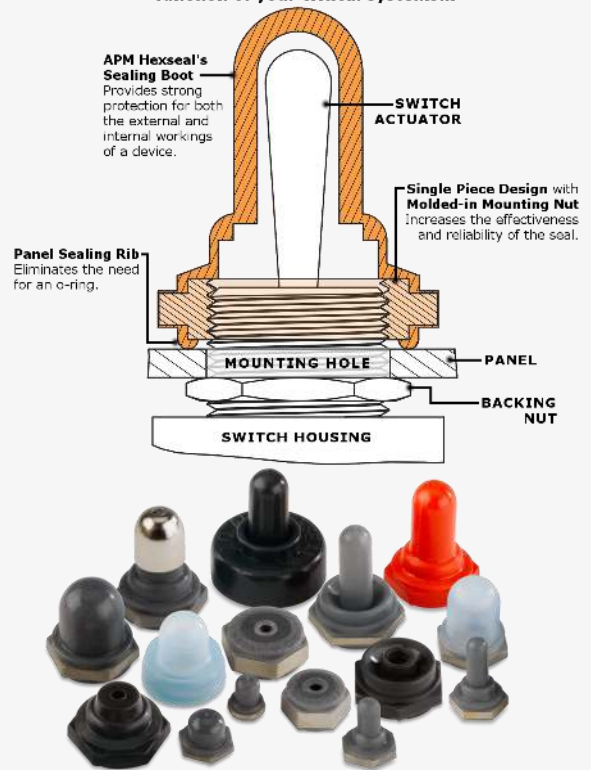
For APM Hexseal® Standard Threaded Toggle, Pushbutton & Rotary Boots

- Elastomer:** Silicone † conforms to A-A-59588, Class 3A, GR50, Gray ‡
- Mounting Nut:** Brass, Nickel Plated
- Temperature Range:** -103° F to +400° F ( -75° C to +204° C)
- Resistant to:** Splash, salt spray, sunlight, ozone, weather, fungus, dust, and most acids and lubricating oils.
- Shelf Life:** Excess of 25 years.
- Enclosure Protection:** IEC IP66 / IP68 •

† Alternative elastomers options are available by request. (See table on page 7 for options.)  
 ‡ Additional durometer and color options available. Please contact us for details.  
 • A dual IP code rating indicates that both ratings apply.

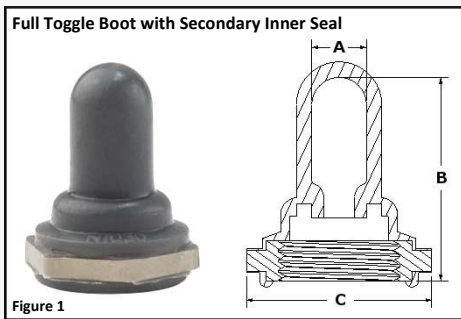
APM Hexseal's UL and ULC Recognized Components conform to UL Standard 50. Contact us for a complete list of our Recognized Components and ratings.

Ensure the safety, reliability and function of your critical systems...



### Full Toggle Boots with Secondary Inner Seal

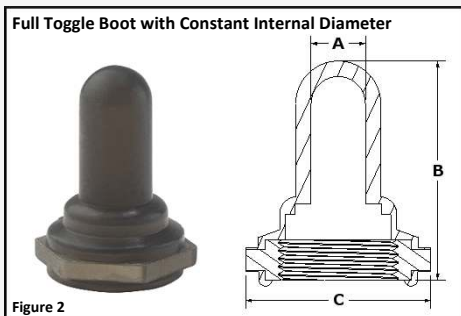
See Figure 1



| APM Hexseal Part # | Military Part # | Thread Size     | Maximum Bat Height (Above Bushing) | DIMENSIONS            |      |            |       |                             |       | System of Measurement |
|--------------------|-----------------|-----------------|------------------------------------|-----------------------|------|------------|-------|-----------------------------|-------|-----------------------|
|                    |                 |                 |                                    | Internal Diameter (A) |      | Height (B) |       | Hex Size/Outer Diameter (C) |       |                       |
|                    |                 |                 |                                    | in                    | mm   | in         | mm    | in                          | mm    |                       |
| C1131/27           | -               | 15/32-32 UNS-2B | 0.710"                             | 0.219                 | 5.56 | 0.937      | 23.80 | 0.625                       | 15.88 | Imperial              |
| N1030              | M5423/01-01     | 15/32-32 UNS-2B | 0.660"                             | 0.219                 | 5.56 | 0.844      | 21.44 | 0.625                       | 15.88 | Imperial              |
| N5030              | M5423/04-01     | 1/4-40 UNS-2B   | 0.310"                             | 0.104                 | 2.64 | 0.422      | 10.72 | 0.375                       | 9.53  | Imperial              |

### Full Toggle Boots with Constant Internal Diameter

See Figure 2

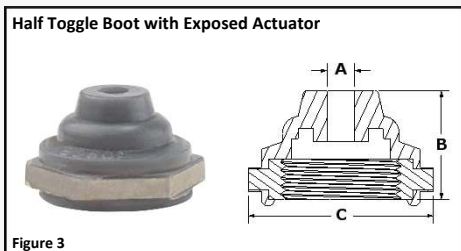


| APM Hexseal Part # | Military Part # | Thread Size     | Maximum Bat Height (Above Bushing) | DIMENSIONS            |      |            |       |                             |       | System of Measurement |
|--------------------|-----------------|-----------------|------------------------------------|-----------------------|------|------------|-------|-----------------------------|-------|-----------------------|
|                    |                 |                 |                                    | Internal Diameter (A) |      | Height (B) |       | Hex Size/Outer Diameter (C) |       |                       |
|                    |                 |                 |                                    | in                    | mm   | in         | mm    | in                          | mm    |                       |
| 1131/26            | -               | 15/32-32 UNS-2B | 0.900"                             | 0.212                 | 5.38 | 1.093      | 27.76 | 0.625                       | 15.88 | Imperial              |
| 50154              | -               | 15/32-32 UNS-2B | 0.925"                             | 0.300                 | 7.62 | 1.110      | 28.19 | 0.625                       | 15.88 | Imperial              |
| C1131/28           | -               | 15/32-32 UNS-2B | 0.710"                             | 0.219                 | 5.56 | 0.937      | 23.80 | 0.625                       | 15.88 | Imperial              |
| IN1030             | -               | 15/32-32 UNS-2B | 0.660"                             | 0.219                 | 5.56 | 0.844      | 21.44 | 0.625                       | 15.88 | Imperial              |
| IQ1030 ▲           | -               | 15/32-32 UNS-2B | 0.735"                             | 0.250                 | 6.35 | 0.975      | 24.77 | 0.875                       | 22.22 | Imperial              |
| N5030L             | M5423/05-01     | 1/4-40 UNS-2B   | 0.370"                             | 0.062                 | 1.57 | 0.500      | 12.70 | 0.375                       | 9.53  | Imperial              |
| N5030S             | -               | 1/4-40 UNS-2B   | 0.500"                             | 0.062                 | 1.57 | 0.594      | 15.08 | 0.375                       | 9.53  | Imperial              |
| 1131/26 M12x.75    | -               | M12 x 0.75 6H   | 22.86mm                            | 0.225                 | 5.72 | 1.093      | 27.76 | 0.625                       | 15.88 | Metric                |
| 1131/26 M12x1      | -               | M12 x 1 6H      | 22.86mm                            | 0.225                 | 5.72 | 1.093      | 27.76 | 0.625                       | 15.88 | Metric                |
| 1131/31 M12        | -               | M12 x 1 6H      | 16.97mm                            | 0.256                 | 6.50 | 0.844      | 21.44 | 0.625                       | 15.88 | Metric                |
| 1131/40            | -               | M12 x 1 6H      | 16.97mm                            | 0.234                 | 5.95 | 0.859      | 21.83 | 0.625                       | 15.88 | Metric                |
| C1131/41           | -               | M12 x 0.75 6H   | 16.08mm                            | 0.210                 | 5.30 | 0.850      | 21.60 | 0.625                       | 15.88 | Metric                |
| IN1030 RFI ♦       | M5423/01-02     | 15/32-32 UNS-2B | 0.660"                             | 0.219                 | 5.56 | 0.844      | 21.44 | 0.625                       | 15.88 | Imperial              |

▲ IQ Toggle Boots "Install Quickly" over pre-installed switches (not shown). Insert is aluminum with a brass washer. Contact us for images and information.  
 ♦ Toggle Boot with EMI/RFI Shielding (not shown). Contact us for images and information.

### Half & Open Toggle Boots with Exposed Actuator

See Figure 3

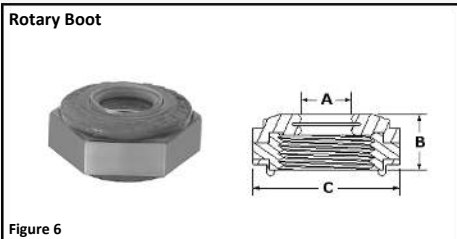
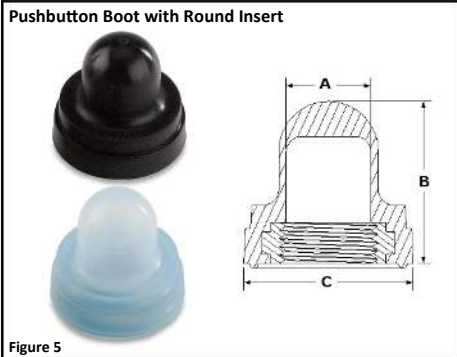
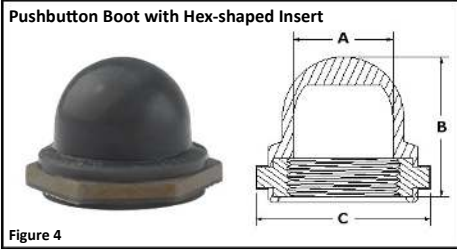


| APM Hexseal Part # | Military Part # | Thread Size     | DIMENSIONS          |      |            |       |                   |       | Toggle Bat Diameter (Min. - Max.) | System of Measurement |          |
|--------------------|-----------------|-----------------|---------------------|------|------------|-------|-------------------|-------|-----------------------------------|-----------------------|----------|
|                    |                 |                 | Throat Diameter (A) |      | Height (B) |       | Flat/Hex Size (C) |       |                                   |                       |          |
|                    |                 |                 | in                  | mm   | in         | mm    | in                | mm    |                                   |                       |          |
| 1132/60 ★          | -               | 15/32-32 UNS-2B | 0.160               | 4.06 | 0.310      | 7.87  | 0.625             | 15.88 | 0.170-0.200                       | 4.32-5.08             | Imperial |
| C1132/20           | -               | 15/32-32 UNS-2B | 0.109               | 2.77 | 0.437      | 11.10 | 0.625             | 15.88 | 0.115-0.240                       | 2.92-6.10             | Imperial |
| C1132/26 ◊         | -               | 15/32-32 UNS-2B | 0.210               | 5.33 | 0.848      | 21.54 | 0.625             | 15.88 | 0.270-0.285                       | 6.86-7.24             | Imperial |
| N1030B             | M5423-02-01     | 15/32-32 UNS-2B | 0.109               | 2.77 | 0.437      | 11.10 | 0.625             | 15.88 | 0.115-0.240                       | 2.92-6.10             | Imperial |
| N5032B             | M5423/11-01     | 1/4-40 UNS-2B   | 0.047               | 1.19 | 0.250      | 6.35  | 0.375             | 9.53  | 0.062-0.188                       | 1.57-4.78             | Imperial |
| 1132/17 M5x0.5     | -               | M5 x 0.5 6H     | 0.043               | 1.10 | 0.225      | 5.70  | 0.315             | 8.00  | 0.062-0.188                       | 1.57-4.78             | Metric   |
| 1132/33 M12x1      | -               | M12 x 1 6H      | 0.093               | 2.36 | 0.437      | 11.10 | 0.625             | 15.88 | 0.115-0.240                       | 2.92-6.10             | Metric   |
| 1132/60 M12 ★      | -               | M12 x 1 6H      | 0.160               | 4.06 | 0.310      | 7.87  | 0.625             | 15.88 | 0.170-0.200                       | 4.32-5.08             | Metric   |

★ "Ultra Flex" Half-Toggle Boot with patented inverted bellows design for use with sensitive switches (not shown). Contact us for images and information.  
 ◊ Open Toggle Boot for lever lock switches (not shown). Contact us for images and information.

This catalog is a **partial** representation of APM Hexseal's many product lines. Please contact us directly for additional product options, as well as to request a Quote or place an Order.





**Pushbutton Boots with Hex-shaped Insert**

See Figure 4

| APM Hexseal Part # | Military Part # | Thread Size     | Maximum Plunger Height (Above Bushing) |       | DIMENSIONS            |       |            |       |                             |       | System of Measurement |
|--------------------|-----------------|-----------------|--|-------|-----------------------|-------|------------|-------|-----------------------------|-------|-----------------------|
|                    |                 |                 |  |       | Internal Diameter (A) |       | Height (B) |       | Hex Size/Outer Diameter (C) |       |                       |
|                    |                 |                 | in                                     | mm    | in                    | mm    | in         | mm    | in                          | mm    |                       |
| 1231/8             | -               | 3/8-27 UNS-2B   | 0.397                                  | 10.08 | 0.300                 | 7.62  | 0.653      | 16.59 | 0.500                       | 12.70 | Imperial              |
| 1231/35            | -               | 3/8-32 UNEF-2B  | 0.418                                  | 10.62 | 0.300                 | 7.62  | 0.670      | 17.20 | 0.500                       | 12.70 | Imperial              |
| 1231/51            | -               | 3/8-27 UNS-2B   | 0.665                                  | 16.88 | 0.313                 | 7.95  | 0.875      | 22.23 | 0.500                       | 12.70 | Imperial              |
| 1238/1 SS ▲        | -               | 15/32-32 UNS-2B | 0.306                                  | 7.77  | 0.422                 | 10.72 | 1.008      | 25.60 | 0.750                       | 19.05 | Imperial              |
| N3030              | M5423/07-01     | 15/32-32 UNS-2B | 0.281                                  | 7.14  | 0.422                 | 10.72 | 0.547      | 13.89 | 0.625                       | 15.88 | Imperial              |
| N3030 RFI ★        | M5423/07-06     | 15/32-32 UNS-2B | 0.281                                  | 7.14  | 0.422                 | 10.72 | 0.547      | 13.89 | 0.625                       | 15.88 | Imperial              |
| N3040              | M5423/07-04     | 5/8-24 UNEF-2B  | 0.281                                  | 7.14  | 0.515                 | 13.08 | 0.609      | 15.47 | 0.750                       | 19.05 | Imperial              |
| N5040              | M5423/10-03     | 1/4-40 UNS-2B   | 0.141                                  | 3.58  | 0.188                 | 4.78  | 0.313      | 7.95  | 0.375                       | 9.53  | Imperial              |
| N5040G             | M5423/10-01     | 1/4-32 UNEF-2B  | 0.203                                  | 5.16  | 0.188                 | 4.78  | 0.313      | 7.95  | 0.375                       | 9.53  | Imperial              |
| N5040R             | M5423/10-02     | 1/4-40 UNS-2B   | 0.203                                  | 5.16  | 0.188                 | 4.78  | 0.313      | 7.95  | 0.375                       | 9.53  | Imperial              |
| N5045              | -               | 8-40 UNS-2B     | 0.188                                  | 4.78  | 0.120                 | 3.05  | 0.297      | 7.54  | 0.250                       | 6.35  | Imperial              |
| NC3030             | M5423/07-02     | 15/32-32 UNS-2B | 0.438                                  | 11.13 | 0.422                 | 10.72 | 0.719      | 18.26 | 0.625                       | 15.88 | Imperial              |
| NC3030 7/16-28     | -               | 7/16-28 UNEF-2B | 0.438                                  | 11.13 | 0.422                 | 10.72 | 0.719      | 18.26 | 0.625                       | 15.88 | Imperial              |
| NH3030             | M5423/07-03     | 1/2-32 UN-2B    | 0.281                                  | 7.14  | 0.422                 | 10.72 | 0.547      | 13.89 | 0.625                       | 15.88 | Imperial              |
| NC3030FL ♦         | -               | 15/32-32 UNS-2B | 0.520                                  | 13.21 | 0.344                 | 8.74  | 0.797      | 20.24 | 0.625                       | 15.88 | Imperial              |
| NC3030H M12x1      | -               | M12 x 1 6H      | 0.469                                  | 11.90 | 0.422                 | 10.72 | 0.734      | 18.64 | 0.625                       | 15.88 | Metric                |

▲ Armored Pushbutton Boot (not shown). Contact us for images and information.  
 ★ Pushbutton Boot with EMI/RFI Shielding (not shown). Contact us for images and information.  
 ♦ Flat Top Pushbutton Boot (not shown). Contact us for images and information.

**Pushbutton Boots with Round Insert (Aluminum)**

See Figure 5

| APM Hexseal Part # | Military Part # | Thread Size   | Maximum Plunger Height (Above Bushing) |       | DIMENSIONS            |      |            |       |                             |       | System of Measurement |
|--------------------|-----------------|---------------|--|-------|-----------------------|------|------------|-------|-----------------------------|-------|-----------------------|
|                    |                 |               |  |       | Internal Diameter (A) |      | Height (B) |       | Hex Size/Outer Diameter (C) |       |                       |
|                    |                 |               | in                                     | mm    | in                    | mm   | in         | mm    | in                          | mm    |                       |
| C1221/22           | -               | 3/8-24 UNF-2B | 0.330                                  | 8.40  | 0.320                 | 8.13 | 0.609      | 15.47 | 0.640                       | 16.26 | Imperial              |
| C1221/24 ◊         | -               | 3/8-27 UNS-2B | 0.419                                  | 10.64 | 0.300                 | 7.62 | 0.609      | 15.47 | 0.640                       | 16.26 | Imperial              |
| C1221/25           | -               | 3/8-27 UNS-2B | 0.419                                  | 10.64 | 0.300                 | 7.62 | 0.609      | 15.47 | 0.640                       | 16.26 | Imperial              |
| C1221/21 M10       | -               | M10 x 1 6H    | 0.330                                  | 8.40  | 0.320                 | 8.13 | 0.609      | 15.47 | 0.640                       | 16.26 | Metric                |
| C1221/27           | -               | M11 x 1 6H    | 0.267                                  | 6.78  | 0.320                 | 8.13 | 0.609      | 15.47 | 0.720                       | 18.29 | Metric                |

◊ Boot is made from APM Hexseal's clear RUBRGLAS®.

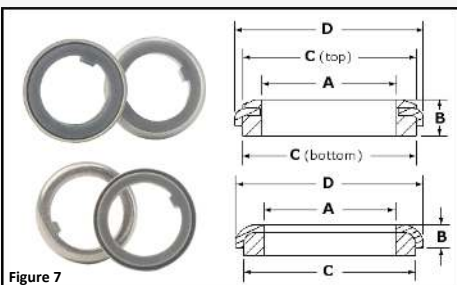
**Rotary Boots**

See Figure 6

| APM Hexseal Part # | Military Part # | Thread Size     | DIMENSIONS     |      |            |      |              |       |          |  | System of Measurement |
|--------------------|-----------------|-----------------|----------------|------|------------|------|--------------|-------|----------|--|-----------------------|
|                    |                 |                 | Shaft Size (A) |      | Height (B) |      | Hex Size (C) |       |          |  |                       |
|                    |                 |                 | in             | mm   | in         | mm   | in           | mm    |          |  |                       |
| N9030x1/4          | M5423/09-02     | 3/8-32 UNEF-2B  | 0.250          | 6.35 | 0.219      | 5.56 | 0.500        | 12.70 | Imperial |  |                       |
| N9040x1/8          | M5423/09-03     | 1/4-32 UNEF-2B  | 0.125          | 3.18 | 0.219      | 5.56 | 0.375        | 9.53  | Imperial |  |                       |
| N9042x1/8          | -               | 1/4-28 UNF-2B   | 0.125          | 3.18 | 0.219      | 5.56 | 0.375        | 9.53  | Imperial |  |                       |
| N9060x1/4          | M5423/09-04     | 15/32-32 UNS-2B | 0.250          | 6.35 | 0.219      | 5.56 | 0.625        | 15.88 | Imperial |  |                       |
| 1332/39            | -               | M7x.75 6H       | 0.196          | 5.00 | 0.200      | 5.50 | 0.500        | 12.70 | Metric   |  |                       |
| 1332/45            | -               | M10x1 6H        | 0.236          | 6.00 | 0.236      | 5.90 | 0.500        | 12.70 | Metric   |  |                       |
| 1332/46            | -               | M10x.75 6H      | 0.236          | 6.00 | 0.236      | 5.90 | 0.500        | 12.70 | Metric   |  |                       |
| C1332/41           | -               | M9x.75 6H       | 0.250          | 6.35 | 0.219      | 5.56 | 0.500        | 12.70 | Metric   |  |                       |

**APM Hexseal Bushing Seals For Switch Panel Cut-Outs**

Bushing Seals pack all the sealing power of a boot, but focus on the mounting hole as opposed to the switch itself. Installed before a switch locking nut, the bushing seal fits snugly against the mounting panel, sealing the mounting hole from any possible intrusion. Bushing Seals are small, inconspicuous and perfect for already sealed toggle, push button and rotary switches.



**Bushing Seals**

See Figure 7

| APM Hexseal Part # | Military Part # | DIMENSIONS       |       |            |      |                             |                             |                    |       | Seal Style       |
|--------------------|-----------------|------------------|-------|------------|------|-----------------------------|-----------------------------|--------------------|-------|------------------|
|                    |                 | Bushing Size (A) |       | Height (B) |      | Seal Diameter (C)           |                             | Outer Diameter (D) |       |                  |
|                    |                 | in               | mm    | in         | mm   | in                          | mm                          | in                 | mm    |                  |
| 60064              | M5423/17-01     | 0.469            | 11.91 | 0.120      | 3.03 | Top: 0.610<br>Bottom: 0.610 | Top: 15.49<br>Bottom: 15.49 | 0.662              | 16.81 | Double-Side Seal |
| 60065              | -               | 0.375            | 9.53  | 0.120      | 3.03 | Top: 0.500<br>Bottom: 0.522 | Top: 12.70<br>Bottom: 13.26 | 0.572              | 14.53 | Double-Side Seal |
| 60225              | M5423/16-01     | 0.469            | 11.91 | 0.120      | 3.03 | 0.610                       | 15.49                       | 0.662              | 16.81 | Single-Side Seal |

**MATERIAL SPECIFICATIONS**  
 For APM Hexseal® Standard Bushing Seals

**Elastomer:** Silicone conforms to A-A-59588, Class 3A, GR50 †, Gray ‡  
**Mounting Nut:** 18/8 Stainless Steel  
**Temperature Range:** -103° F to +400° F (-75° C to +204° C)  
**Resistant to:** Splash, salt spray, sunlight, ozone, weather, fungus, dust, and most acids and lubricating oils.  
**Shelf Life:** Excess of 25 years.  
**Enclosure Protection:** IEC IP66 / IP68 •

† Durometer options available. Please contact us for details.  
 ‡ Additional colors available. Please contact us for details.  
 • A dual IP code rating indicates that both ratings apply.

APM Hexseal's UL and ULC Recognized Components conform to UL Standard 50.  
 Contact us for a complete list of our Recognized Components and ratings.



This catalog is a **partial** representation of APM Hexseal's many product lines. Please contact us directly for additional product options, as well as to request a Quote or place an Order.





# APM Hexseal Boots for Circuit Breakers & Rocker Switches

Circuit breakers perform a very valuable role in all sorts of control systems, protecting equipment from short circuits and electrical overloads. APM Hexseal's lever-actuated circuit breaker boots are designed to protect these critical devices, extending breaker life-spans and in turn helping to ensure long-term security of the system as a whole. Molded from APM Hexseal's transparent silicone RUBRGLAS<sup>®</sup>, which is specially formulated to maintain clarity and prevent yellowing over time, these boots allow for easy device operation and status recognition while maintaining APM Hexseal's exceptional environmental protection from weather exposure, wash downs, salt water, lubricants, solvents, dust, dirt, grease and any number of other environmental elements that could potentially threaten electrical components. Our two distinct boot styles are Back-of-Panel, secured behind the breaker mounting panel, and Front-of-Panel, mounted to the outside of a panel using a sturdy metal frame. Both styles are secured using APM Hexseal's self-sealing Seelskrews.

Much like our Circuit Breaker Boots, APM Hexseal's Rocker Boots are often molded from transparent silicone RUBRGLAS<sup>®</sup> which makes for easy viewing of the switch position. The majority of our Rocker Boots do not include an insert or frame, and are designed to install on the switch prior to the switch installation.



### MATERIAL SPECIFICATIONS

For APM Hexseal<sup>®</sup> Standard Rocker and Lever-Actuated Circuit Breaker Boots

**Elastomer:** APM HEXSEAL RUBRGLAS<sup>®</sup> (transparent Silicone) conforms to A-A-59588, Class 3A, GR50 †

**Frame (Front-of-Panel Mounted Only):** Low Carbon Steel ‡ with Zinc-Chromate Plating •

**Temperature Range:** -103° F to +400° F ( -75° C to +204° C)

**Resistant to:** Splash, salt spray, sunlight, ozone, weather, fungus, dust, and most acids and lubricating oils.

**Shelf Life:** Excess of 25 years.

**Enclosure Protection:** Rocker Boots— IEC IP55; Front-of-Panel Mounted— IEC IP66 / IP68 ◊; Back-of-Panel Mounted— IEC IP66 / IP68 ◊

† Durometer options available. Please contact us for details.

‡ Frames are also available in Stainless Steel for extremely aggressive environments.

• Contact us for details on our standard 3-step frame finish.

◊ A dual IP code rating indicates that both ratings apply.

APM Hexseal's UL and ULC Recognized Components conform to UL Standard 50. Contact us for a complete list of our Recognized Components and ratings.

### Front-of-Panel Mounting

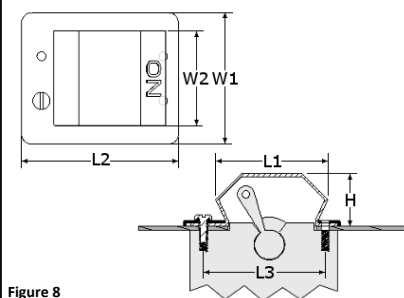


Figure 8

### Circuit Breaker Boots, Front-of-Panel Mounting

See Figure 8

| APM Hexseal Part # | Military Part # | Poles  | Marks | DIMENSIONS |       |               |       |               |       |               |       |              |       | Standard Seelskrews <sup>®</sup> Included ◊ |              |                         |
|--------------------|-----------------|--------|-------|------------|-------|---------------|-------|---------------|-------|---------------|-------|--------------|-------|---|--------------|-------------------------|
|                    |                 |        |       | Height (H) |       | Length 1 (L1) |       | Length 2 (L2) |       | Length 3 (L3) |       | Width 1 (W1) |       |   | Width 2 (W2) |                         |
|                    |                 |        |       | in         | mm    | in            | mm    | in            | mm    | in            | mm    | in           | mm    |   | in           | mm                      |
| HE1015             | M5423/14-05     | 1-Pole | ON    | 0.875      | 22.22 | 1.875         | 47.63 | 2.625         | 66.66 | 2.062         | 52.37 | 1.375        | 34.93 | 0.875                                       | 22.22        | S6-32x3/8" 2701 2 Count |
| HE1020             | M5423/14-06     | 2-Pole | ON    | 0.875      | 22.22 | 1.875         | 47.63 | 2.656         | 67.46 | 2.062         | 52.37 | 2.219        | 56.36 | 1.594                                       | 40.49        | S6-32x3/8" 2701 4 Count |
| HE1045             | -               | 1-Pole | -     | 0.450      | 11.43 | 1.300         | 33.02 | 1.900         | 48.26 | 1.660         | 42.16 | 0.800        | 20.32 | 1.200                                       | 30.48        | S6-32x3/8" 2701 2 Count |
| HE1050             | M5423/14-07     | 3-Pole | ON    | 0.875      | 22.22 | 1.875         | 47.63 | 2.656         | 67.46 | 2.062         | 52.37 | 2.969        | 75.41 | 2.344                                       | 59.54        | S6-32x3/8" 2701 6 Count |
| HE1070             | M5423/14-03     | 3-Pole | ON    | 0.922      | 23.42 | 2.000         | 50.80 | 3.719         | 94.46 | 2.750         | 69.85 | 3.656        | 92.86 | 3.156                                       | 80.16        | S6-32x3/8" 2701 6 Count |

• Metric Seelskrews are also available by request.

### Back-of-Panel Mounting

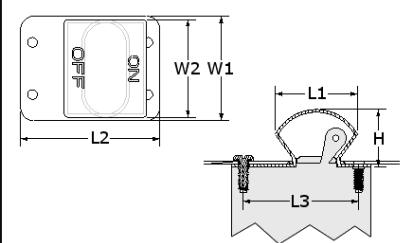


Figure 9

### Circuit Breaker Boots, Back-of-Panel Mounting

See Figure 9

| APM Hexseal Part # | Military Part # | Poles  | Marks  | DIMENSIONS |       |               |       |               |       |               |       |              |       | Standard Seelskrews <sup>®</sup> Included ◊ |              |                          |
|--------------------|-----------------|--------|--------|------------|-------|---------------|-------|---------------|-------|---------------|-------|--------------|-------|---|--------------|--------------------------|
|                    |                 |        |        | Height (H) |       | Length 1 (L1) |       | Length 2 (L2) |       | Length 3 (L3) |       | Width 1 (W1) |       |   | Width 2 (W2) |                          |
|                    |                 |        |        | in         | mm    | in            | mm    | in            | mm    | in            | mm    | in           | mm    |   | in           | mm                       |
| 1113/40            | -               | 1-Pole | ON/OFF | 0.813      | 20.65 | 1.188         | 30.18 | 2.000         | 50.80 | 1.660         | 42.16 | 0.750        | 19.50 | 0.656                                       | 16.66        | S6-32x5/16" 2701 2 Count |
| 1113/42            | -               | 2-Pole | ON/OFF | 0.813      | 20.65 | 1.188         | 30.18 | 2.000         | 50.80 | 1.660         | 42.16 | 1.500        | 38.10 | 1.406                                       | 35.71        | S6-32x5/16" 2701 4 Count |
| 1113/43            | -               | 3-Pole | ON/OFF | 0.813      | 20.65 | 1.188         | 30.18 | 2.000         | 50.80 | 1.660         | 42.16 | 2.250        | 57.15 | 2.156                                       | 54.76        | S6-32x5/16" 2701 6 Count |

• Metric Seelskrews are also available by request.

### Rocker Boot

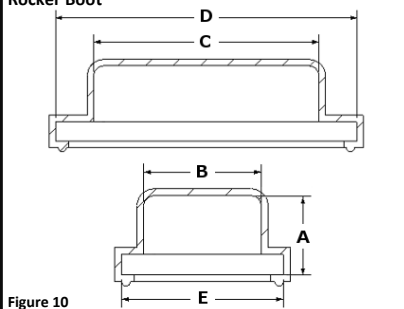


Figure 10

### Rocker Boots

See Figure 10

| APM Hexseal Part # | Military Part # | DIMENSIONS |       |             |       |              |       |              |       |             |       | Compatible Switches (Partial List)                       |
|--------------------|-----------------|------------|-------|-------------|-------|--------------|-------|--------------|-------|-------------|-------|--|
|                    |                 | Height (A) |       | Width 1 (B) |       | Length 1 (C) |       | Length 2 (D) |       | Width 2 (E) |       |  |
|                    |                 | in         | mm    | in          | mm    | in           | mm    | in           | mm    | in          | mm    |  |
| 1113/62            | -               | 0.297      | 7.54  | 0.797       | 20.24 | 0.687        | 17.45 | 1.093        | 27.76 | 0.968       | 24.61 | Eaton/Arrow Hart 2600 Series                             |
| 1113/66            | -               | 0.228      | 5.79  | 0.348       | 8.84  | 0.531        | 13.49 | 0.750        | 19.05 | 0.531       | 13.49 | Carling 611/621-Series                                   |
| 1113/70            | -               | 0.297      | 7.54  | 0.437       | 11.10 | 0.875        | 22.23 | 1.218        | 30.94 | 0.640       | 16.27 | Carling RSC-Series                                       |
| 1113/71            | -               | 0.413      | 10.49 | 0.687       | 17.45 | 1.046        | 26.57 | 1.327        | 33.71 | 0.703       | 17.86 | Carling M Series Sensata/Airpax R11 Eaton/Heinemann LC-1 |

This catalog is a **partial** representation of APM Hexseal's many product lines. Please contact us directly for additional product options, as well as to request a Quote or place an Order.



# APM Hexseal's High-Pressure Self-Sealing Fasteners

APM Hexseal holds the notable distinction of having designed and patented the very first self-sealing fasteners, which became our trademarked Seelskrews® and Seelbolts®. In addition to fastening, our self-sealing screws and bolts offer a reliable and reusable seal, preventing (or containing!) contamination from dust, air, water, lubricants and other liquid or gaseous substances. They are also vibration resistant, making them a great choice for applications that encounter day-to-day jarring, or repetitive movement. Should you need a more serious level of vibration resistance, our screws and bolts are available with locking features such as self-locking pellets, strips and patches. Some additional customizations include specialty thread-forming variations, tamper-resistant drives, thread captivation, as well as paint and finish options. Contact us for additional thread size and o-ring elastomer options.

## SEELSKREWS®

**STANDARD FLAT HEAD † with CROSS RECESS DRIVE (PHILLIPS) – Type Code SFR**

| Thread Size   | Drive Size | Available Lengths (L) ‡ | Max. Head Diameter (C) | Recommended Clearance Hole |               |            |            |
|---------------|------------|-------------------------|------------------------|----------------------------|---------------|------------|------------|
|               |            |                         |                        | Min. Diameter              | Max. Diameter | Min. Depth | Max. Depth |
| 2-56 UNC-2A   | #1         | 1/4" to 1"              | 0.172"                 | 0.091"                     | 0.950"        | 0.036"     | 0.054"     |
| 4-40 UNC-2A   | #1         | 1/4" to 1"              | 0.225"                 | 0.125"                     | 0.129"        | 0.050"     | 0.075"     |
| 6-32 UNC-2A   | #2         | 1/4" to 1"              | 0.279"                 | 0.147"                     | 0.152"        | 0.063"     | 0.094"     |
| 8-32 UNC-2A   | #2         | 1/4" to 1"              | 0.332"                 | 0.173"                     | 0.179"        | 0.063"     | 0.094"     |
| 10-24 UNC-2A  | #2         | 5/16" to 1"             | 0.385"                 | 0.199"                     | 0.204"        | 0.083"     | 0.125"     |
| 10-32 UNF-2A  | #2         | 5/16" to 1"             | 0.385"                 | 0.199"                     | 0.204"        | 0.063"     | 0.094"     |
| 1/4-20 UNC-2A | #3         | 3/8" to 1-1/4"          | 0.507"                 | 0.265"                     | 0.269"        | 0.100"     | 0.150"     |

See Figure 11

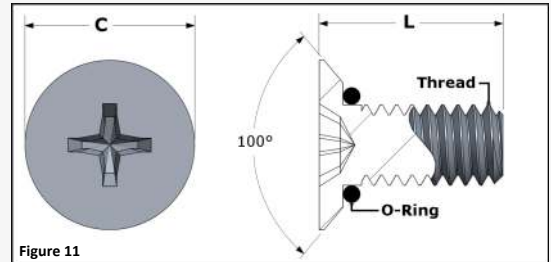


Figure 11

**STANDARD PAN HEAD with SLOTTED DRIVE – Type Code S**

| Thread Size   | Available Lengths (L) ‡ | Max. Head Diameter (C) | Max. Head Height (D) | Recommended Clearance Hole |               |            |            |
|---------------|-------------------------|------------------------|----------------------|----------------------------|---------------|------------|------------|
|               |                         |                        |                      | Min. Diameter              | Max. Diameter | Min. Depth | Max. Depth |
| 2-56 UNC-2A   | 1/4" to 5/8"            | 0.168"                 | 0.055"               | 0.091"                     | 0.950"        | 0.036"     | 0.054"     |
| 4-40 UNC-2A   | 1/4" to 1"              | 0.220"                 | 0.069"               | 0.125"                     | 0.129"        | 0.050"     | 0.075"     |
| 6-32 UNC-2A   | 1/4" to 1"              | 0.271"                 | 0.083"               | 0.147"                     | 0.152"        | 0.063"     | 0.094"     |
| 8-32 UNC-2A   | 1/4" to 1"              | 0.323"                 | 0.097"               | 0.173"                     | 0.179"        | 0.063"     | 0.094"     |
| 10-32 UNF-2A  | 1/4" to 1"              | 0.374"                 | 0.113"               | 0.199"                     | 0.204"        | 0.063"     | 0.094"     |
| 10-24 UNC-2A  | 1/4" to 1"              | 0.374"                 | 0.113"               | 0.199"                     | 0.204"        | 0.083"     | 0.125"     |
| 1/4-20 UNC-2A | 5/16" to 1-1/4"         | 0.493"                 | 0.148"               | 0.265"                     | 0.269"        | 0.100"     | 0.150"     |
| 1/4-28 UNF-2A | 5/16" to 1-1/4"         | 0.493"                 | 0.148"               | 0.265"                     | 0.269"        | 0.071"     | 0.107"     |

See Figure 12

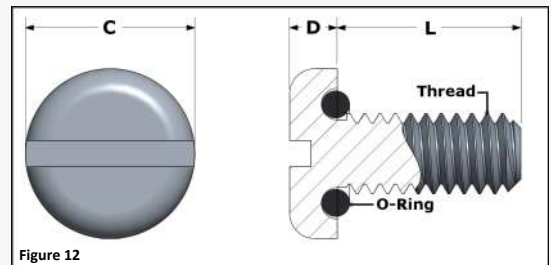


Figure 12

**METRIC PAN HEAD with SLOTTED DRIVE – Type Code SM**

| Thread Size    | Available Lengths (L) ‡ | Max. Head Diameter (C) | Max. Head Height (D) | Recommended Clearance Hole |               |            |            |
|----------------|-------------------------|------------------------|----------------------|----------------------------|---------------|------------|------------|
|                |                         |                        |                      | Min. Diameter              | Max. Diameter | Min. Depth | Max. Depth |
| M2 x 0.40 6g   | 4mm to 12mm             | 4.24mm                 | 1.37mm               | 2.31mm                     | 2.41mm        | 0.80mm     | 1.20mm     |
| M2.5 x 0.45 6g | 4mm to 12mm             | 5.56mm                 | 1.73mm               | 2.67mm                     | 2.84mm        | 0.90mm     | 1.35mm     |
| M3 x 0.50 6g   | 4mm to 40mm             | 6.22mm                 | 1.90mm               | 3.55mm                     | 3.65mm        | 1.00mm     | 1.50mm     |
| M4 x 0.70 6g   | 4mm to 40mm             | 8.17mm                 | 2.43mm               | 4.39mm                     | 4.54mm        | 1.40mm     | 2.10mm     |
| M5 x 0.80 6g   | 6mm to 40mm             | 9.70mm                 | 3.05mm               | 5.56mm                     | 5.66mm        | 1.60mm     | 2.40mm     |
| M6 x 1 6g      | 6mm to 50mm             | 12.49mm                | 3.73mm               | 6.73mm                     | 6.83mm        | 2.00mm     | 3.00mm     |
| M8 x 1.25 6g   | 6mm to 50mm             | 15.62mm                | 4.52mm               | 8.45mm                     | 8.55mm        | 2.50mm     | 3.75mm     |

See Figure 13

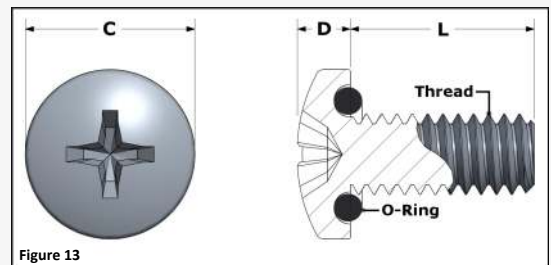


Figure 13

**STANDARD PAN HEAD with CROSS RECESS DRIVE (PHILLIPS) – Type Code R**

| Thread Size   | Drive Size | Available Lengths (L) ‡ | Max. Head Diameter (C) | Max. Head Height (D) | Recommended Clearance Hole |               |            |            |
|---------------|------------|-------------------------|------------------------|----------------------|----------------------------|---------------|------------|------------|
|               |            |                         |                        |                      | Min. Diameter              | Max. Diameter | Min. Depth | Max. Depth |
| 2-56 UNC-2A   | #1         | 1/4" to 1"              | 0.181"                 | 0.062"               | 0.091"                     | 0.950"        | 0.036"     | 0.054"     |
| 4-40 UNC-2A   | #1         | 1/4" to 1"              | 0.238"                 | 0.080"               | 0.125"                     | 0.129"        | 0.050"     | 0.075"     |
| 6-32 UNC-2A   | #2         | 1/4" to 1"              | 0.294"                 | 0.097"               | 0.147"                     | 0.152"        | 0.063"     | 0.094"     |
| 8-32 UNC-2A   | #2         | 1/4" to 1"              | 0.347"                 | 0.115"               | 0.173"                     | 0.179"        | 0.063"     | 0.094"     |
| 10-32 UNF-2A  | #2         | 3/8" to 1"              | 0.403"                 | 0.133"               | 0.199"                     | 0.204"        | 0.063"     | 0.094"     |
| 10-24 UNC-2A  | #2         | 3/8" to 1"              | 0.403"                 | 0.133"               | 0.199"                     | 0.204"        | 0.083"     | 0.125"     |
| 1/4-20 UNC-2A | #3         | 3/8" to 1-1/4"          | 0.517"                 | 0.175"               | 0.265"                     | 0.269"        | 0.100"     | 0.150"     |
| 1/4-28 UNF-2A | #3         | 3/8" to 1-1/4"          | 0.517"                 | 0.175"               | 0.265"                     | 0.269"        | 0.071"     | 0.107"     |

**METRIC PAN HEAD with CROSS RECESS DRIVE (PHILLIPS) – Type Code RM**

| Thread Size    | Drive Size | Available Lengths (L) ‡ | Max. Head Diameter (C) | Max. Head Height (D) | Recommended Clearance Hole |               |            |            |
|----------------|------------|-------------------------|------------------------|----------------------|----------------------------|---------------|------------|------------|
|                |            |                         |                        |                      | Min. Diameter              | Max. Diameter | Min. Depth | Max. Depth |
| M2 X 0.40 6g   | #1         | 4mm to 12mm             | 4.24mm                 | 1.60mm               | 2.31mm                     | 2.41mm        | 0.80mm     | 1.20mm     |
| M2.5 X 0.45 6g | #1         | 4mm to 12mm             | 5.46mm                 | 2.10mm               | 2.67mm                     | 2.84mm        | 0.90mm     | 1.35mm     |
| M3 X 0.50 6g   | #2         | 4mm to 40mm             | 6.70mm                 | 2.40mm               | 3.55mm                     | 3.65mm        | 1.00mm     | 1.50mm     |
| M4 X 0.70 6g   | #2         | 4mm to 40mm             | 8.69mm                 | 3.05mm               | 4.39mm                     | 4.54mm        | 1.40mm     | 2.10mm     |
| M5 X 0.80 6g   | #2         | 6mm to 40mm             | 9.90mm                 | 3.70mm               | 5.56mm                     | 5.66mm        | 1.60mm     | 2.40mm     |
| M6 X 1 6g      | #3         | 6mm to 50mm             | 12.58mm                | 4.60mm               | 6.73mm                     | 6.83mm        | 2.00mm     | 3.00mm     |

† Standard APM Hexseal Flat Head Seelskrews have a 100° head angle.  
 ‡ Available in increments of 1/16" up to 5/8" length, and 1/8" from 5/8" length up. Tolerance for lengths up to 1" is +0 -1/32". Tolerance above 1" is +0 -1/16".  
 § Available in increments of 2mm. Tolerance for lengths up to 25mm is +0 -0.8mm. Tolerance above 25mm is +0 -1.6mm.

## MATERIAL SPECIFICATIONS

For APM Hexseal® Standard Seelskrews® & Seelbolts®

- Screw/Bolt Material:** 18/8 Stainless Steel, passivated (other materials available)
- Thread Class:** Imperial— Class 2A ▲; Metric— Class 6g
- O-Ring Elastomer:** Silicone conforms to A-A-59588, Class 2, GR60 or GR70, Red ♦
- Temperature Range:** -80° F to +425° F ( -62° C to +219° C)
- Pressure Range:** Up to 20,000 psig internal and external (subject to clearance hole dimensions).
- Resistant to:** Splash, salt spray, sunlight, ozone, weather, fungus, dust, and most acids and lubricating oils.
- Shelf Life:** Excess of 25 years.
- Enclosure Protection:** IEC IP66 / IP68 ★

- ▲ Standard for stock screws and bolts.
- ♦ Alternative o-ring elastomers are available by request. (See table on page 7 for options.)
- ★ A dual IP code rating indicates that both ratings apply.

APM Hexseal's UL and ULC Recognized Components conform to UL Standard 50. Contact us for a complete list of our Recognized Components and ratings.

## Tamper-Resistant Drive Styles

| STYLE VIEW |                       |                    |               |
|------------|-----------------------|--------------------|---------------|
| STYLE NAME | 6-Lobe Drive with Pin | Hex Drive with Pin | Spanner Drive |
| TYPE CODE  | LBP                   | HP                 | SS            |

Contact us for more information on these, and other, drive options.



This catalog is a **partial** representation of APM Hexseal's many product lines. Please contact us directly for additional product options, as well as to request a Quote or place an Order.



**SEELBOLTS®**

See Figure 14

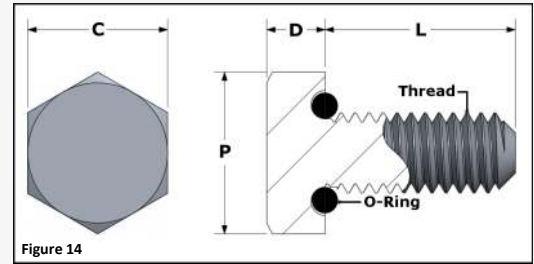
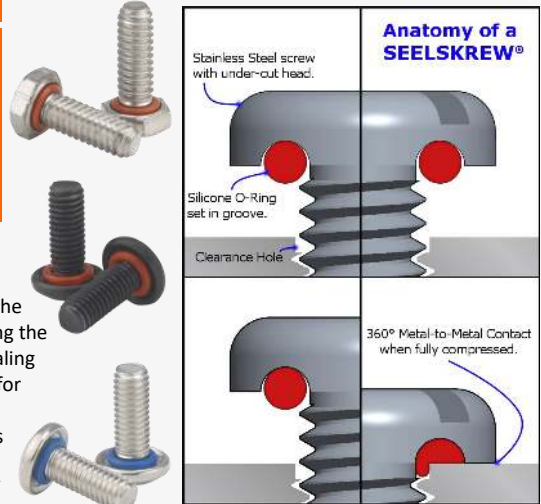


Figure 14

| STANDARD HEXAGONAL HEAD BOLT – Type Code ST |                           |                            |                               |                      |                            |               |            |            |
|---|---------------------------|----------------------------|-------------------------------|----------------------|----------------------------|---------------|------------|------------|
| Thread Size                                 | Min. Length Available (L) | Distance Between Flats (C) | Distance Between Points (P) ▲ | Max. Head Height (D) | Recommended Clearance Hole |               |            |            |
|   |                           |                            |                               |                      | Min. Diameter              | Max. Diameter | Min. Depth | Max. Depth |
| 1/4-28 UNF-2A                               | 3/8"                      | 0.440"                     | 0.510"                        | 0.163"               | 0.265"                     | 0.269"        | 0.071"     | 0.107"     |
| 1/4-20 UNC-2A                               | 3/8"                      | 0.440"                     | 0.510"                        | 0.163"               | 0.265"                     | 0.269"        | 0.100"     | 0.150"     |
| 5/16-24 UNF-2A                              | 1/2"                      | 0.502"                     | 0.580"                        | 0.211"               | 0.332"                     | 0.336"        | 0.083"     | 0.125"     |
| 5/16-18 UNC-2A                              | 3/8"                      | 0.502"                     | 0.580"                        | 0.211"               | 0.332"                     | 0.336"        | 0.111"     | 0.167"     |
| 3/8-24 UNF-2A                               | 5/8"                      | 0.565"                     | 0.650"                        | 0.243"               | 0.395"                     | 0.399"        | 0.083"     | 0.125"     |
| 3/8-16 UNC-2A                               | 1/2"                      | 0.565"                     | 0.650"                        | 0.243"               | 0.395"                     | 0.399"        | 0.125"     | 0.188"     |
| 1/2-20 UNF-2A                               | 1/2"                      | 0.752"                     | 0.870"                        | 0.323"               | 0.530"                     | 0.534"        | 0.100"     | 0.150"     |
| 1/2-13 UNC-2A                               | 3/4"                      | 0.752"                     | 0.870"                        | 0.323"               | 0.530"                     | 0.534"        | 0.154"     | 0.231"     |

| METRIC HEXAGONAL HEAD BOLT – Type Code STM |                           |                            |                               |                      |                            |               |            |            |
|--|---------------------------|----------------------------|-------------------------------|----------------------|----------------------------|---------------|------------|------------|
| Thread Size                                | Min. Length Available (L) | Distance Between Flats (C) | Distance Between Points (P) ▲ | Max. Head Height (D) | Recommended Clearance Hole |               |            |            |
|  |                           |                            |                               |                      | Min. Diameter              | Max. Diameter | Min. Depth | Max. Depth |
| M6 X 1.6g                                  | 8mm                       | 10mm                       | 11.28mm                       | 4.15mm               | 6.73mm                     | 6.83mm        | 2.00mm     | 3.00mm     |
| M8 X 1.25 6g                               | 12mm                      | 13mm                       | 14.69mm                       | 5.65mm               | 8.45mm                     | 8.55mm        | 2.50mm     | 3.75mm     |
| M10 X 1.5 6g                               | 12mm                      | 17mm                       | 19.25mm                       | 7.18mm               | 10.53mm                    | 10.64mm       | 3.00mm     | 4.50mm     |
| M12 X 1.75 6g                              | 20mm                      | 19mm                       | 21.50mm                       | 8.18mm               | 12.79mm                    | 12.9mm        | 3.50mm     | 5.25mm     |
| M16 X 2 6g                                 | 20mm                      | 24mm                       | 27.23mm                       | 10.18mm              | 17.52mm                    | 17.63mm       | 4.00mm     | 6.00mm     |

▲ The "Distance Between Points" values are for reference only.



**APM Hexseal's High-Pressure Self-Sealing Nuts**

APM Hexseal's Seelnuts® are made from high quality rubber, molded into a specially shaped cavity in the nut itself. With threads molded directly into the rubber, these self-sealing nuts form a positive seal along the threaded section of the Seelnut, as well as with the contact surface, removing the need for gaskets, sealing compounds or extra surface preparation. Seelnuts install just like conventional nuts, and are designed for use with ordinary screws, bolts and studs, making them a quick and easy sealing option for all sorts of applications, especially where there is a need to withstand high internal or external pressures. Seelnuts are also reusable, meaning that they can be easily removed and reapplied, reestablishing the same reliable seal when torqued. Our Seelnuts are available in all standard thread sizes as well as a variety of different elastomers to suit your application needs. For applications where excessive vibration is an issue, Seelnuts can be supplied with self-locking pellets.

**SEELNUTS®**

See Figure 15

| Thread Size      | Height of Sealing Rib (R) | STANDARD NUTS – Type Code AJ |                      | JAM NUTS – Type Code AJ MC |                      |
|------------------|---------------------------|------------------------------|----------------------|----------------------------|----------------------|
|                  |                           | Distance Between Flats (C)   | Max. Head Height (D) | Distance Between Flats (C) | Max. Head Height (D) |
| 6-32 UNC-2B      | 1/64"                     | 5/16"                        | 9/64"                | 1/2"                       | 7/32"                |
| 8-32 UNC-2B      | 1/64"                     | 3/8"                         | 5/32"                | 1/2"                       | 7/32"                |
| 10-24 UNC-2B     | 1/64"                     | 3/8"                         | 5/32"                | 1/2"                       | 7/32"                |
| 10-32 UNF-2B     | 1/64"                     | 3/8"                         | 5/32"                | 1/2"                       | 7/32"                |
| 1/4-20 UNC-2B    | 1/64"                     | 7/16"                        | 7/32"                | 5/8"                       | 7/32"                |
| 1/4-28 UNF-2B    | 1/64"                     | 7/16"                        | 7/32"                | 5/8"                       | 7/32"                |
| 5/16-18 UNC-2B   | 1/64"                     | 1/2"                         | 17/64"               | 5/8"                       | 7/32"                |
| 5/16-24 UNF-2B ♦ | 1/64"                     | 1/2"                         | 17/64"               | 5/8"                       | 7/32"                |
| 3/8-16 UNC-2B    | 1/64"                     | 9/16"                        | 21/64"               | 5/8"                       | 7/32"                |
| 3/8-24 UNF-2B    | 1/64"                     | 9/16"                        | 21/64"               | 5/8"                       | 7/32"                |
| 7/16-20 UNF-2B   | 1/32"                     | 11/16"                       | 3/8"                 | N/A                        | N/A                  |
| 1/2-13 UNC-2B    | 1/32"                     | 3/4"                         | 27/64"               | 3/4"                       | 7/32"                |
| 1/2-20 UNF-2B    | 1/32"                     | 3/4"                         | 27/64"               | 3/4"                       | 7/32"                |
| 5/8-18 UNF-2B    | 1/32"                     | 15/16"                       | 35/64"               | N/A                        | N/A                  |

♦ The Jam Nut material used for this thread size is Low Carbon Steel with Zinc-Chromate plating.

| METRIC NUTS ★ – Type Code AJ |                           |                            |                      |
|------------------------------|---------------------------|----------------------------|----------------------|
| Thread Size                  | Height of Sealing Rib (R) | Distance Between Flats (C) | Max. Head Height (D) |
| M3 x 0.5 6H                  | 0.2mm                     | 5.5mm                      | 2.2mm                |
| M4 x 0.7 6H                  | 0.3mm                     | 7.0mm                      | 3.0mm                |
| M5 x 0.8 6H                  | 0.4mm                     | 8.0mm                      | 3.8mm                |
| M6 x 1 6H                    | 0.5mm                     | 10.0mm                     | 4.8mm                |
| M8 x 1.25 6H                 | 0.6mm                     | 13.0mm                     | 6.3mm                |
| M10 x 1.5 6H                 | 0.6mm                     | 17.0mm                     | 7.8mm                |
| M12 x 1.75 6H                | 0.8mm                     | 19.0mm                     | 9.3mm                |
| M14 x 2 6H                   | 1.0mm                     | 22.0mm                     | 10.8mm               |

★ APM Hexseal's standard material for metric nuts is Stainless-Steel.

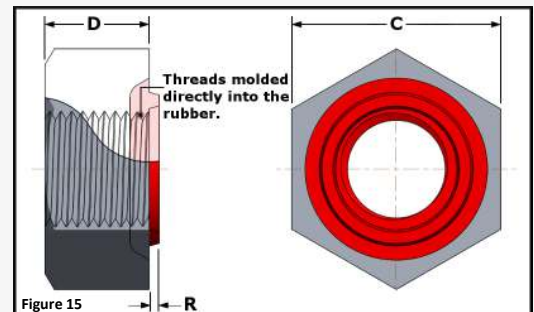


Figure 15

**MATERIAL SPECIFICATIONS**  
For APM Hexseal® Standard Seelnuts®

**Nut Material:** Low Carbon Steel with Zinc-Chromate Plating †  
**Threads:** Imperial— Class 2B ‡; Metric— Class 6H  
**Elastomer:** Silicone conforms to A-A-59588, Class 3A, GR60, Red ♦  
**Temperature Range:** -103° F to +400° F (-75° C to +204° C)  
**Pressure Range:** Up to 20,000 psig internal and external (subject to clearance hole dimensions).  
**Resistant to:** Splash, salt spray, sunlight, ozone, weather, fungus, dust, and most acids and lubricating oils.  
**Shelf Life:** Excess of 25 years.  
**Enclosure Protection:** IEC IP66 / IP68 •

† Standard Jam Nut material is Brass with Nickel Plating.  
 ‡ Standard for stock nuts.  
 ♦ Alternative elastomers are available by special order.  
 • A dual IP code rating indicates that both ratings apply.

APM Hexseal's UL and ULC Recognized Components conform to UL Standard 50. Contact us for a complete list of our Recognized Components and ratings.

**Ordering Instructions for Products with Type Codes – Seelskrews®, Seelbolts® & Seelnuts®**

The following information is **required** in order for our Sales Team to process any kind of Purchase Order or Request for Quote:

- 1) Indicate the desired **Type Code** (Type Codes are short series' of letters that can be found in corresponding parts tables)
- 2) Specify the desired **Thread Size** as listed in the parts table
- 3) Specify the **Length**, if applicable
- 4) Specify the desired **O-Ring Material**, if applicable (Please see **Elastomer Options for APM Hexseal® O-Rings** on page 7)

Any additions, such as alternate materials, finish options and locking features, should be discussed with a Sales Associate at the time of order.

This catalog is a **partial** representation of APM Hexseal's many product lines. Please contact us directly for additional product options, as well as to request a Quote or place an Order.





# APM Hexseal Air-Tight Sealing Washers

APM Hexseal's Seeloc® Washers consist of molded silicone rubber bonded to specially formed stainless steel washers. Designed to be used in conjunction with conventional screws, bolts or studs, Seeloc Washers are a simple sealing solution that is ideal for all sorts of applications, especially where spray, vapors or wash-downs are present, or where there is concern of contamination from dust, oils or salt build-up. The silicone contact surface features a continuous ridge which, upon compression, creates a 360° sealing barrier around the periphery of the washer face. The silicone rubber also forms a seal under the head of the associated fastener and makes full vertical contact with the threads/shank, making for a complete, high-pressure seal unlike any other. Seeloc Washers can be used over conventional mounting holes, extra-large holes, or even oddly shaped adjustment slots. Their reusability make them perfect for applications that might require periodic maintenance or adjustments.



**MATERIAL SPECIFICATIONS**  
For APM Hexseal® Standard Seeloc® Washers

**Washer Material:** 18/8 Stainless Steel  
**Elastomer:** Silicone † conforms to A-A-59588, Class 3A, GR50, Green ‡  
**Temperature Range:** -103° F to +400° F (-75° C to +204° C)  
**Pressure Range:** Up to 100 psig internal and external.  
**Resistant to:** Splash, salt spray, sunlight, ozone, weather, fungus, dust, and most acids and lubricating oils.  
**Shelf Life:** Excess of 25 years.  
**Enclosure Protection:** IEC IP66 / IP68 ◊

† Alternative materials are available. Consult Elastomer Options table below.  
 ‡ Standard color for Metric Seeloc Washers is red. Alternative colors are available by special order.  
 ◊ A dual IP code rating indicates that both ratings apply.

APM Hexseal's UL and ULC Recognized Components conform to UL Standard 50.  
 Contact us for a complete list of our Recognized Components and ratings.

Can't find the fastener you need?



**ASK US!**

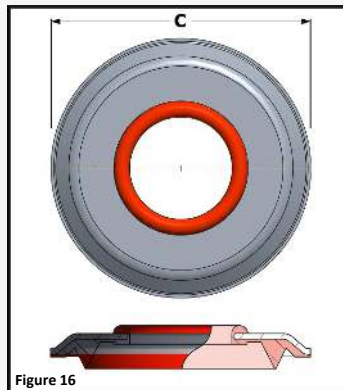


Figure 16

If we do not already have what you are looking for, we can **MAKE IT!** Contact us for more information.

## APM Hexseal's Available Elastomers

**Cautionary Note:** These tables are to be used as a guide ONLY. The information provided does not take into account the possible variations that can, and do, exist from one application to another, and thus cannot be relied upon as definite. APM Hexseal strongly recommends that the material you select be rigorously tested in the actual application in order to independently verify that the material is well suited for your particular installation or use.

### Elastomer Options for APM Hexseal® Sealing Boots, Bushings, Seelnuts® & Seeloc® Washers

| KEY      |                       |
|----------|-----------------------|
| <b>A</b> | → Recommended         |
| <b>B</b> | → Fair / Satisfactory |
| <b>C</b> | → Acceptable / Poor   |
| <b>U</b> | → Unsatisfactory      |

| Compound Letter & Code | Material Name             | Relevant Specifications                  | Service Temp. in °F | Service Temp. in °C | RESISTANCE |           |               |                | TYPICAL PROPERTIES |              |                     |                 |
|------------------------|---------------------------|--|---------------------|---------------------|------------|-----------|---------------|----------------|--------------------|--------------|---------------------|-----------------|
|                        |                           |  |                     |                     | Ozone      | Chemicals | Petroleum Oil | Soap Solutions | Tensile PSI        | Elongation % | Abrasion Resistance | Compression Set |
| S 2701                 | Silicone                  | A-A-59588, Class 3A, GR30, GR50, GR60 ▲  | -103° to +400°      | -75° to +204°       | A          | B         | U             | A              | 500-1800           | 100-800      | A                   | A               |
| L 2615                 | FluoroSilicone            | MIL-DTL-25988 (B), Type 2, Class 1, GR60 | -70° to +392°       | -57° to +200°       | A          | B         | A             | A              | 600-1400           | 100-700      | C                   | A               |
| N 4601                 | Buna N (Nitrile)          | ASTM D2000 60 Durometer                  | -22° to +212°       | -30° to +100°       | C          | C         | A             | A              | 1500-3000          | 400-600      | A                   | B               |
| E 3601                 | Neoprene                  | ASTM D2000 60 Durometer                  | -40° to +257°       | -40° to +121°       | B          | C         | B             | A              | 1500-4000          | 100-700      | B                   | C               |
| F 7601                 | EPDM (Ethylene Propylene) | ASTM D2000 70 Durometer                  | -60° to +300°       | -51° to +149°       | A          | U         | U             | A              | 1400-1600          | 500-600      | B                   | A               |

▲ Various durometer and color options available. Please contact us for more information.

### Elastomer Options for APM Hexseal® O-Rings

| Compound Letter & Code | Material Name             | Relevant Specifications                       | Service Temp. in °F | Service Temp. in °C | RESISTANCE |           |               |                | TYPICAL PROPERTIES |              |                     |                 |
|------------------------|---------------------------|---|---------------------|---------------------|------------|-----------|---------------|----------------|--------------------|--------------|---------------------|-----------------|
|                        |                           |   |                     |                     | Ozone      | Chemicals | Petroleum Oil | Soap Solutions | Tensile PSI        | Elongation % | Abrasion Resistance | Compression Set |
| S 2701                 | Silicone                  | A-A-59588, Class 2, GR60 or GR70              | -80° to +425°       | -62° to +219°       | A          | B         | U             | A              | 500-1800           | 100-800      | A                   | A               |
| L 2615                 | Fluoro-Silicone           | MIL-DTL-25988C, Type 1, Class 1, GR60 or GR70 | -70° to +392°       | -57° to +200°       | A          | B         | A             | A              | 600-1400           | 100-700      | B                   | A               |
| V 5701                 | Viton® A ♦                | ASTM D2000 75 Durometer                       | -15° to +400°       | -26° to +205°       | A          | A         | A             | A              | 2000-2200          | 300-400      | C                   | B               |
| N 4601                 | Buna N (Nitrile)          | ASTM D2000 70 Durometer                       | -30° to +250°       | -34° to +121°       | C          | C         | A             | A              | 1500-3000          | 400-600      | A                   | B               |
| E 3601                 | Neoprene                  | ASTM D2000 70 Durometer                       | -35° to +225°       | -37° to +107°       | B          | C         | B             | A              | 1500-4000          | 100-700      | B                   | C               |
| F 7601                 | EPDM (Ethylene Propylene) | ASTM D2000 70 Durometer                       | -70° to +250°       | -57° to +121°       | A          | U         | U             | A              | 1400-1600          | 500-600      | B                   | A               |

♦ Viton® is a registered trademark of DuPont Performance Elastomers.

This catalog is a **partial** representation of APM Hexseal's many product lines. Please contact us directly for additional product options, as well as to request a Quote or place an Order.



Suitability of APM Hexseal® Products to Customer Application

The information contained in APM Hexseal literature, website, drawings, etc., is offered in good faith and is believed to be accurate. Since APM Hexseal cannot foresee or control the varied conditions under which this information and/or APM Hexseal products may be used, APM Hexseal does not guarantee the applicability of this information, or the suitability of APM Hexseal products. Customers are expected to perform their own evaluation to determine the suitability of APM Hexseal products for their specific purposes and applications.

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Compatible with Cole Hersee Momentary Switches

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Currently available in 1/2" and 1" Outer Diameter sizes.

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