

# EMI/RFI Shielded Environmental Sealing Boots for Toggle, Pushbutton and Rotary-Activated Switches & Circuit Breakers



## DESCRIPTION

APM HEXSEAL'S proprietary shielded toggle, pushbutton and rotary-activated switch and circuit breaker boots:

- Protect the mechanism from damage and/or performance degradation due to environmental contaminants such as oil, grease, water, cleaning solvents, dust and dirt.
- Seal the panel cutout in which the switch/breaker is mounted, thus protecting behind-panel components from damage due to leakage.
- Provide up to 120dB of shielding effectiveness to contain spurious EMI/RFI that might be transmitted through the switch/breaker or panel cutout.

Each is fabricated from a rugged, high tear-resistant silicone rubber with an integral EMI/RFI shielding screen.

## FEATURES and BENEFITS

- **UL & CSA-Recognized Components** ... facilitates easier "listing" of the equipment in which they are used.
- **Meets MIL-B-5423 Specifications.**
- **Up to 120dB of shielding effectiveness** ... to protect against spurious EMI/RFI.
- **Rugged silicone rubber material** ... resists tearing and most environmental contaminants. Won't discolor, crack or dry out.
- **Patented perimeter sealing rib** ... seals the panel cutout in which the switch is mounted.
- **Vibration-resistant mounting** ... resists switch loosening due to vibration/shock.
- **Wide operating temperature range** ... assures long-term performance in the toughest thermal environments.
- **Wide range of available colors** ... units can be molded in an array of colors to meet your needs.

## TYPICAL APPLICATIONS

Avionics • Communications • Computer • Medical • And many other EMI/RFI-sensitive applications

### SPECIFICATIONS

**Material:** HEXSEALS: Silicone rubber conforms to A-A59588, GR 50 (unless otherwise specified) with integral MONEL shielding screen. MONEL meets requirements of QQN-281 Class A.

**Mounting Nut:** HEXSEALS: Brass, nickel-plated

**Temperature Range:** HEXSEALS: -94°F to +400°F (-70°C to +204°C).

**Pressure Range:** Exceeds 15 psi internal and 1,500 psi external.

**Operational Life:** 15,000 actuations (minimum).

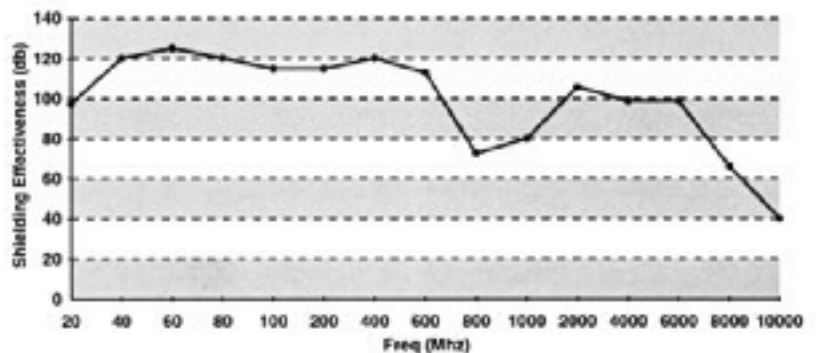
**Shelf Life:** Excess of 25 years.

**Resistant To:** Salt spray, sunlight, ozone, weather, fungus, and most acids and lubricating oils.

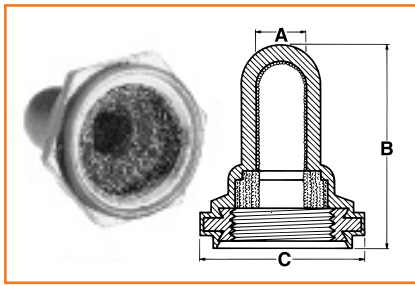
**Military Approvals:** Meets MIL-B-5423 specifications.

**Agency Recognition:** HEXSEALS are UL-listed to UL Std. 50 types 1-13 and meet CSA standards, C22.2 No. 94.

### SHIELDING EFFECTIVENESS (of MONEL shielding material)



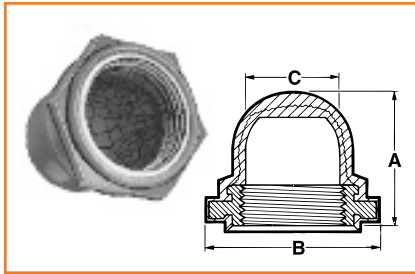
Source: Intertek Testing Services



### EMI/RFI Shielded Full Toggle Boots – IP66/68 Rated

Thread Size	Max. Toggle Height Above Bushing (in.)	A Throat or I.D.		B Height		C Flat		Military Part Number	APM Boot Part Number	Color*	HEXSEAL	E-SEAL
		in.	mm	in.	mm	in.	mm					
1/4-40NS-2B	.36	.062	1.58	.500	12.70	.375	9.52	—	N-5030L RFI	Gray	•	
15/32-32NS-2B	.66	.219	5.55	.844	21.44	.625	15.88	M5423/01-02	IN-1030 RFI	Gray	•	
1/2-32NS-2B	.66	.219	5.55	.844	21.44	.625	15.88	—	IN-1030 RFI 1/2-32	Gray	•	
1/4-40NS-2B	.28	.062	1.58	.390	9.90	.375	9.52	—	N-5030R RFI	Gray	•	
1/4-40NS-2B	.50	.062	1.58	.594	15.08	.375	9.52	—	N-5030S RFI	Gray	•	

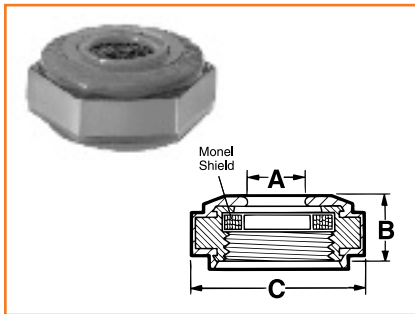
\*Other colors available. Please consult factory.



### EMI/RFI Shielded Full Pushbutton Boots – IP66/68 Rated

Thread Size	Plunger Height		A		B Flat		C I.D.		Military Part Number	APM Boot Part Number	Color*	HEXSEAL	E-SEAL
	inch	mm	inch	mm	inch	mm	inch	mm					
15/32-32NS-2B	.281	7.14	.547	13.89	.625	15.88	.422	10.72	M5423/07-06	N3030RFI	Gray	•	
15/32-32NS-2B	.438	11.11	.719	18.26	.625	15.88	.422	10.72	M5423/07-07	NC3030RFI	Gray	•	
1/2-32NS-2B	.281	7.14	.547	13.89	.625	15.88	.422	10.72	M5423/07-08	NH3030RFI	Gray	•	
1/2-32NS-2B	.188	4.76	.547	13.89	.625	15.88	.422	10.72	M5423/07-10	NH3030SRFI	Gray	•	
5/8-24NEF-2B	.281	7.14	.609	15.48	.750	19.05	.516	13.10	M5423/07-09	N3040RFI	Gray	•	
1/2-32NS-2B	.469	11.91	.734	18.65	.625	15.88	.422	10.72	—	NC3030HRFI	Gray	•	

\*Other colors available. Please consult factory.



### EMI/RFI Shielded Rotary Shaft Seals – IP66/68 Rated

Thread Size	A Shaft Size		B Height		C Flat		Military Part Number	APM Boot Part Number	Color*	HEXSEAL	E-SEAL
	inch	mm	inch	mm	inch	mm					
1/4-32NF2B	.125	3.18	.219	5.56	.375	9.53	M5423/09-09	N9040 x 1/8 RFI	Gray	•	
3/8-32NEF-2B	.125	3.18	.219	5.56	.500	12.70	M5423/09-07	N9030 x 1/8 RFI	Gray	•	
3/8-32NEF-2B	.250	6.35	.219	5.56	.500	12.70	M5423/09-08	N9030 x 1/4 RFI	Gray	•	
3/8-32NEF-2B	.250	6.35	.359	9.12	.500	12.70	M5423/09-14	N9033 x 1/4 RFI	Gray	•	
15/32-32NS-2B	.250	6.35	.219	5.56	.625	15.88	M5423/09-10	N9060 x 1/4 RFI	Gray	•	
5/8-24NEF-2B	.375	9.53	.219	5.56	.750	19.05	M5423/09-11†	N9065 x 3/8 RFI	Gray	•	
1/2-32NS-2B	.250	6.35	.219	5.56	.625	15.88	M5423/09-12	N9063 x 1/4 RFI	Gray	•	
1/4-28NF-2B	.125	3.18	.219	5.56	.375	9.53	—	N9042 x 1/8 RFI	Gray	•	
3/8-32NEF-2B	.125	3.18	.531	13.49	.625	15.88	—	NLK9030 x 1/8 RFI	Gray	•	
3/8-32NEF-2B	.250	6.35	.531	13.49	.625	15.88	—	NLK9030 x 1/4 RFI	Gray	•	

\*Other colors available. Please consult factory. †Inactive for new designs.

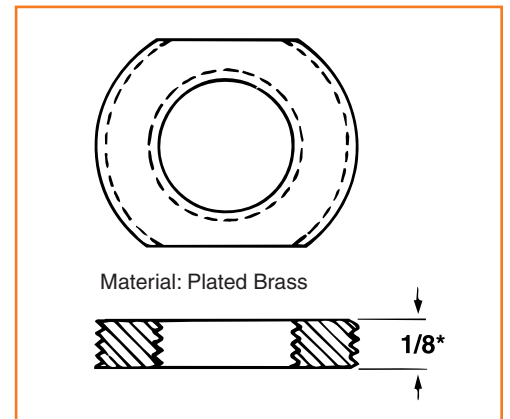
## HOW TO ORDER

Specify APM Boot part number and, if necessary, the appropriate bushing adaptor part number.

## Optional Threaded Bushing Adaptors

Inside (Bushing) Thread Size (Class 2B)	Outside (Boot) Thread Size (Class 2A)	APM Part Number
3/8-32	15/32-32	2500/1/5*
15/32-32	11/16-32	2500/1/7
1/2-32	11/16-32	2500/1/10
15/32-32	13/16-32	2500/1/8
1/2-24	13/16-32	2500/1/9
5/8-24	13/16-32	2500/1/11
5/8-24	7/8-32	2500/1/12
3/4-32	7/8-32	2500/1/13*
3/4-20	7/8-32	2500/1/14*

\*5/32 thick. Additional sizes, including metric, available. Consult factory.



\*Unless otherwise noted.

