

NKK® SERIES M PUSHBUTTON SWITCHES

MOMENTARY & ALTERNATE/1-4 POLE/LARGE BUSHING

TYPICAL LARGE BUSHING SWITCH ORDERING EXAMPLE

MB

2011

S

B1

W

01

—

D

C

POLES & CIRCUITS

2011	SPDT	ON	(ON)
2065	SPDT	ON	ON
2061	DPDT	ON	(ON)
2085	DPDT	ON	ON
2181	4PDT	ON	(ON)
2185	4PDT	ON	ON
() = Momentary			

CONTACT MATERIALS & RATINGS

W	Silver Rated 6A @ 125V AC & 3A @ 250V AC
G	Gold Rated 0.4VA maximum @ 28V AC/DC maximum

CAPS

B	.315" Dia.
C	.394" Dia.
D	.520" Dia.
E	.748" Dia.

PLUNGER TYPES

S	Plunger for Screw-on Caps
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TERMINALS

01	Solder Lug
02	Quick Connect
03	.250" Straight PC
05	.425" Wirewrap
06	.750" Wirewrap
07	.964" Wirewrap
08	1.062" Wirewrap

CAP COLORS

A	Black
B	White
C	Red
D	Orange Used with cap code D only
E*	Yellow
F	Green
G*	Blue
H*	Gray
*Not available with cap code E	

BUSHINGS

B1	Large .472" Metric Threaded with Keyway
B3	Large .472" Threaded Splashproof w/D Flat

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE (MB2011SB1W01-DC):

SERIES M PUSHBUTTON

IMPORTANT: Switches are supplied without UL & CSA marking unless specified. See Supplement for instructions.

Red .520" Diameter Cap

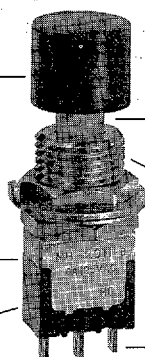
Plunger for Screw-on Caps

SPDT ON-(ON) Circuit

Silver Contacts with
6 Amp & 3 Amp Rating

Large .472" Metric Threaded
Bushing with Keyway

Solder Lug Terminals



MOMENTARY & ALTERNATE/1-4 POLE/LARGE BUSHING

POLES & CIRCUITS

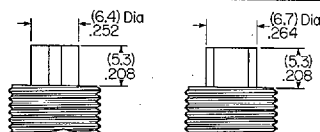
For poles and circuit information, refer to the details contained in the Poles & Circuits Chart appearing in the previous bushing mount section.

PLUNGER TYPES

S Plunger for Screw-on Caps

Plastic for B1 Bushing
Metal for B3 Bushing

On alternate action models, after transferring circuit, the plunger returns to its original position and does not latch down.



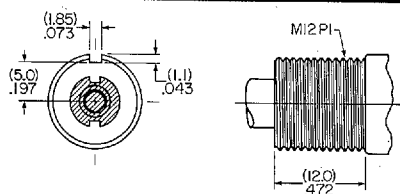
For B1

For B3

BUSHING

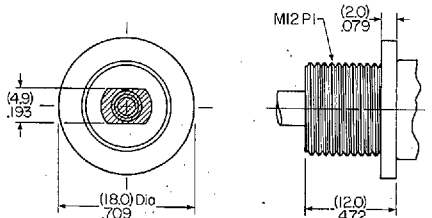
B1

Large .472" Metric Threaded with Keyway



B3

Large .472" Threaded Splashproof



CONTACT MATERIALS & RATINGS

W

Silver over Silver
Rated 6A @ 125V AC
& 3A @ 250V AC

G

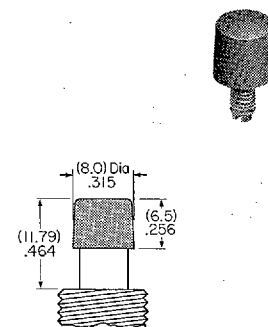
Gold over Brass
or Copper
Rated 0.4VA max @
28V AC/DC max

CAPS

B

AT078
.315" Dia. Cap

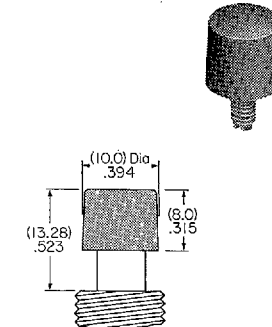
Polystyrene



C

AT079
.394" Dia. Cap

Polystyrene

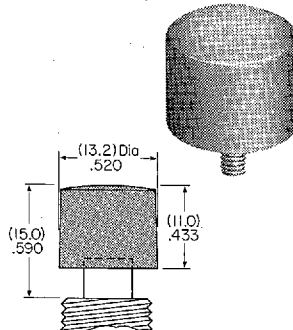


Colors Available: A B C E F G H

D

AT414
.520" Dia. Cap

Polystyrene

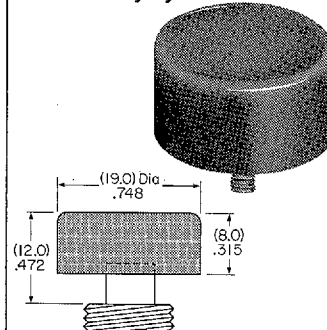


Colors Available:
A B C D E F G H

E

AT412
.748" Dia. Cap

Polystyrene



Colors Available:
A B C F

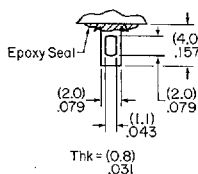
Color Codes:

A Black B White C Red D Orange E Yellow
F Green G Blue H Gray

TERMINALS

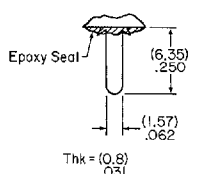
01

Solder Lug



02

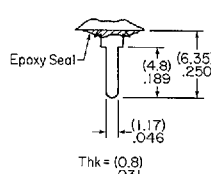
.062" Wide Quick Connect



Corresponds to AMP
#60900-1 receptacle

03

.250" Straight PC



Wirewrap

05

.425"
(10.8mm)

06

.750"
(19.05mm)

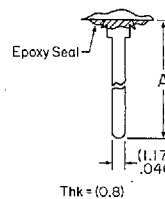
07

.964"
(24.5mm)

08

1.062"
(27.0mm)

Dimension A = wirewrap terminal
lengths as shown beside code boxes.



NKK® SERIES M PUSHBUTTON SWITCHES

MOMENTARY & ALTERNATE/1-4 POLE/LARGE BUSHING

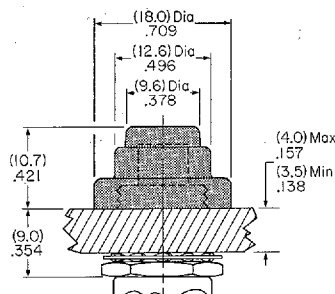
OPTIONAL SPLASHPROOF BOOT

AT4043 Splashproof Boot

Silicone Rubber

Operating Life:
100,000 for momentary
30,000 for alternate action

When using a splashproof boot, no cap is required.



SOLDERING & WIRING

Soldering:

3 seconds @ 350°C

5 seconds @ 270°C

Wiring:

Solder lug terminals have .043" X .079" oblong holes which accommodate 1 solid 18-gauge wire or 2 solid or stranded 20-gauge wires.

OPTIONAL MOUNTER

AT528 Snap-In Mounter

Fiberglass reinforced nylon

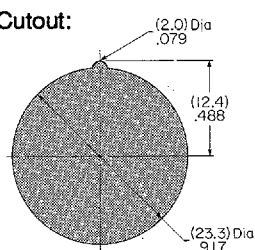
Black only available

Used with .748" diameter cap only

Panel Thickness:

1.0mm - 4.0mm
(.039" - .157")

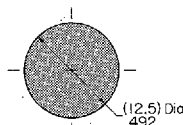
Panel Cutout:



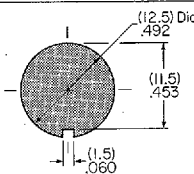
The mounter may be ordered assembled to the switch by entering "AT528" immediately after the switch part number. Mounters may also be ordered separately.

PANEL CUTOUT & PANEL THICKNESS

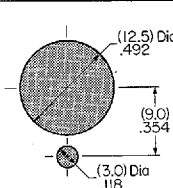
Without Keyway



With Keyway



With Locking Ring

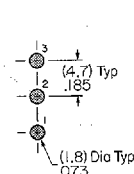


Effective Panel Thickness

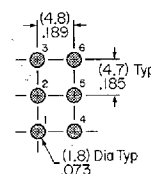
with Standard Hardware: 5.5mm (.217") maximum

PC BOARD MOUNTING

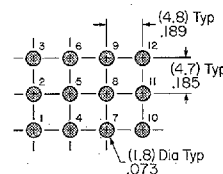
Single Pole



Double Pole



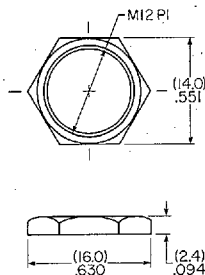
Four Pole



STANDARD MOUNTING HARDWARE PROVIDED WITH SWITCHES

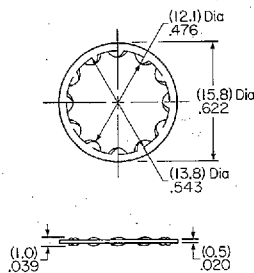
AT503 Hex Nut

Brass with chrome plating



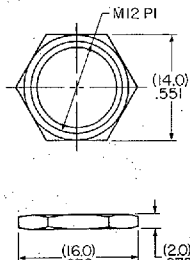
AT508 Lockwasher

Steel with zinc plating



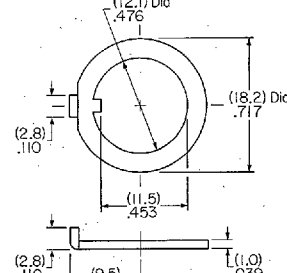
AT527M for Metric Hex Nut

Steel with nickel plating



AT506 Locking Ring

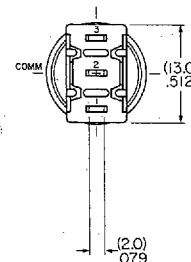
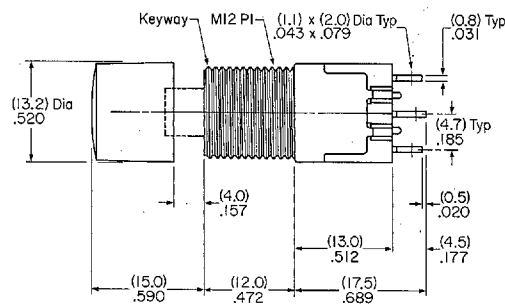
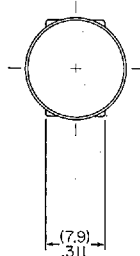
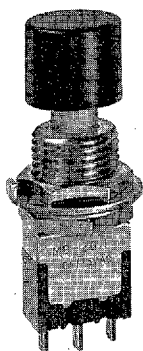
Steel with zinc plating



NKK® SERIES M PUSHBUTTON SWITCHES

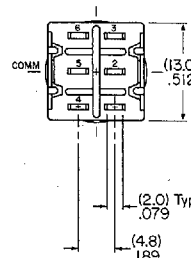
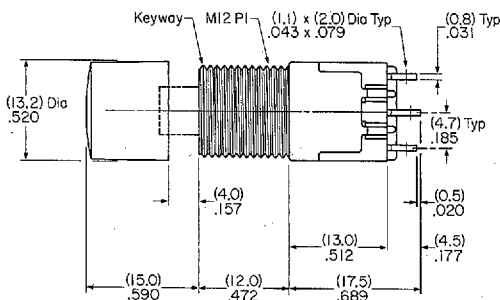
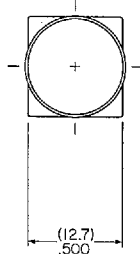
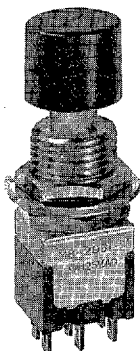
MOMENTARY & ALTERNATE/1-4 POLE/LARGE BUSHING

Large Bushing/Solder Lug/Single Pole



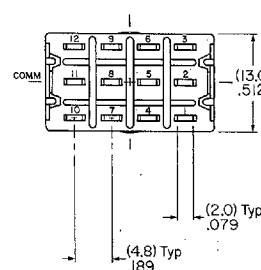
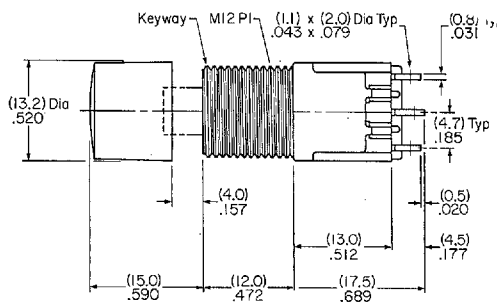
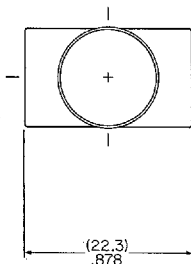
MB2011SB1WO1-DC Model Shown

Large Bushing/Solder Lug/Double Pole



MB2061SB1WO1-DC Model Shown

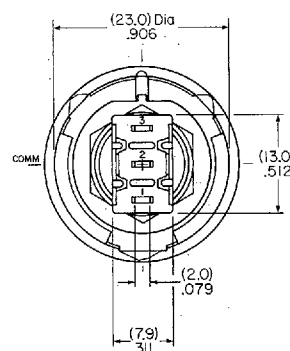
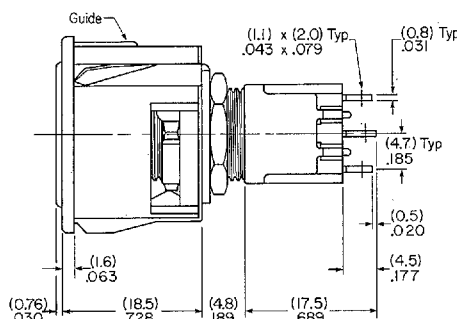
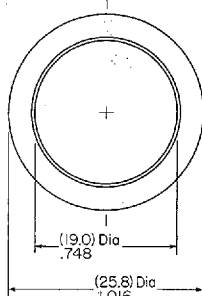
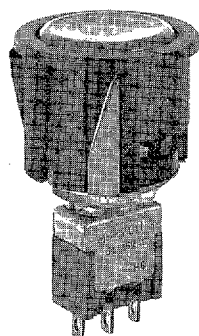
Large Bushing/Solder Lug/Four Pole



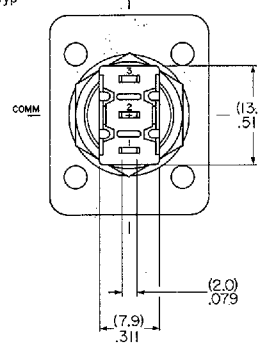
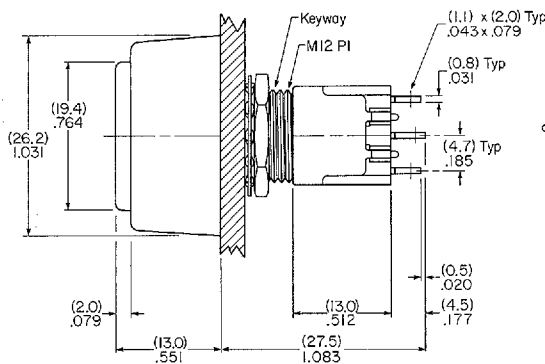
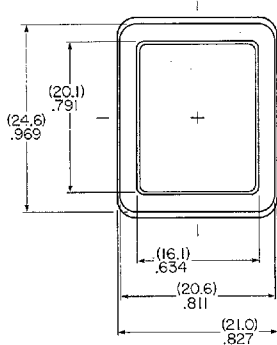
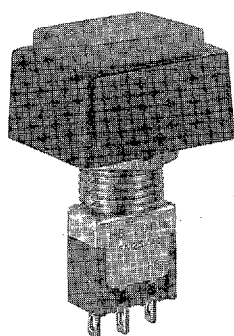
MB2181SB1WO1-DC Model Shown

Pushbuttons

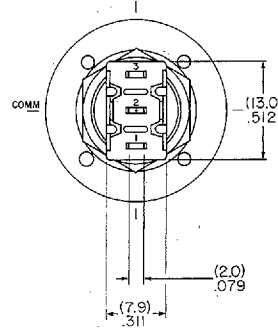
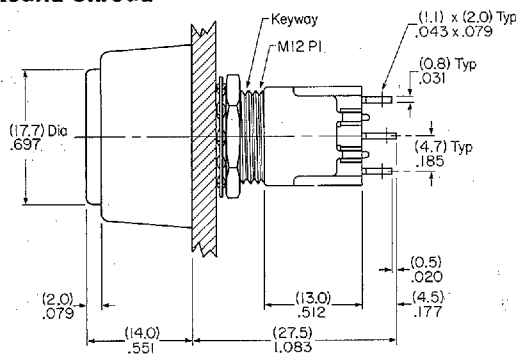
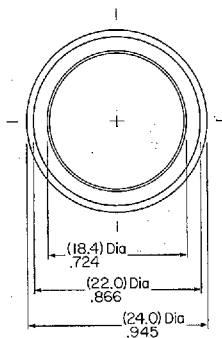
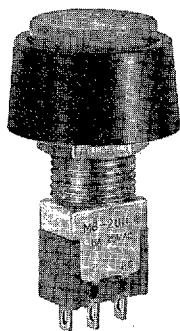
Large Bushing/Solder Lug/Single Pole with Snap-In Mounter



Large Bushing/Solder Lug/Single Pole with Rectangular Shroud



Large Bushing/Solder Lug/Single Pole with Round Shroud



Model shown is MB2011SB1W01 with optional Round Shroud **AT455**, Shroud Insert **AT454** and Screw Adaptor for Insert **AT080**. When assembling, use only **AT508** and **AT527M** of the standard hardware provided. For material, color availability and dimensions of these accessories, see the Accessories Section at the end of this catalog.



SERIES M PUSHBUTTON SWITCHES

SUBMINIATURE/MOMENTARY & ALTERNATE/1-4 POLE

GENERAL SPECIFICATIONS

Electrical Capacity: (Resistive Load)	6A @ 125V AC or 3A @ 250V AC 6A @ 30V DC 0.4VA maximum @ 28V maximum AC/DC (Applicable Range 0.1mA ~ 0.1A @ 20mV ~ 28V)		
Contact Resistance:	10 milliohms maximum for silver 20 milliohms maximum for gold		
Insulation Resistance:	1,000 megohms minimum @ 500V DC		
Dielectric Strength:	1,000V AC minimum between contacts 1,500V AC minimum between contacts and case		
Mechanical Life:	100,000 operations minimum 50,000 operations minimum for splashproof devices		
Electrical Life:	25,000 operations minimum for silver 50,000 operations minimum for gold		
Nominal Operating Force:		<u>Momentary</u>	<u>Alternate Action</u>
	Single Pole	950 grams	450 grams
	Double Pole	1,650 grams	720 grams
	Four Pole	2,400 grams	1,200 grams
Ambient Temp Range:	-15°C through +85°C (+5°F through +185°F) Optional low temperature lubricant available		

MATERIALS & FINISHES

Plunger	Brass w/nickel plating; polyacetal resin (B1 bushing)
Bushing	Brass with nickel plating
Frame	Stainless steel
Case	Diallylphthalate resin (UL 94V-0 flammability rating)
Movable Contactor	Phosphor bronze with silver or gold plating*
Movable Contacts	Silver alloy (code W); silver alloy with gold plating* over nickel (code A); or copper with gold plating* over nickel (code G)
Stationary Contacts	Silver with silver plating (code W); silver with gold plating* over nickel (code A); or copper or brass with gold plating* over nickel (code G)
Terminals	Copper or brass with silver plating; copper or brass with gold plating over nickel

* Gold plating on contacts is 1 micron minimum.

UL & CSA

UL File No. E44145

All models with ratings of 6A @ 125V AC, 3A @ 250V AC, and 0.4VA @ 28V AC/DC are recognized by Underwriters Laboratories Inc.

CSA File Nos.

LR 23535 and LR56017

Models rated 6A @ 125V AC, 3A @ 250V AC, and 0.4VA @ 28V AC/DC certified by Canadian Standards Association: 1-pole with PC, solder lug, and wirewrap; 2- and 4-pole with PC, solder lug, wirewrap, and quick connect.

PLUNGER TRAVEL

	With Screw-on Cap		With Snap-on Caps Momentary & Alternate Action
	Momentary	Alternate Action	
Pretravel	0.71mm (.028")	2.80mm (.110")	3.19mm (.125")
Overtravel	1.09mm (.043")	1.10mm (.043")	1.26mm (.050")
Total Travel	1.80mm (.071")	3.90mm (.153")	4.45mm (.175")

A-25-13

DISTINCTIVE FEATURES

Antirotation feature is standard on noncylindrical levers.

Antijamming design on toggle switches protects contacts from damage due to excessive downward force on the actuator.

High torque bushing construction prevents rotation or separation from frame during installation.

Stainless steel frame resists corrosion.

Patented silver contacts of specially composed alloy for hardness.

High insulating barriers, formed in the molded diallyphthalate case, increase isolation of circuits in multipole devices and provide added protection to contact points.

Epoxy sealed terminals prevent entry of solder flux and other contaminants.

Prominent external insulating barriers increase insulation resistance and dielectric strength.

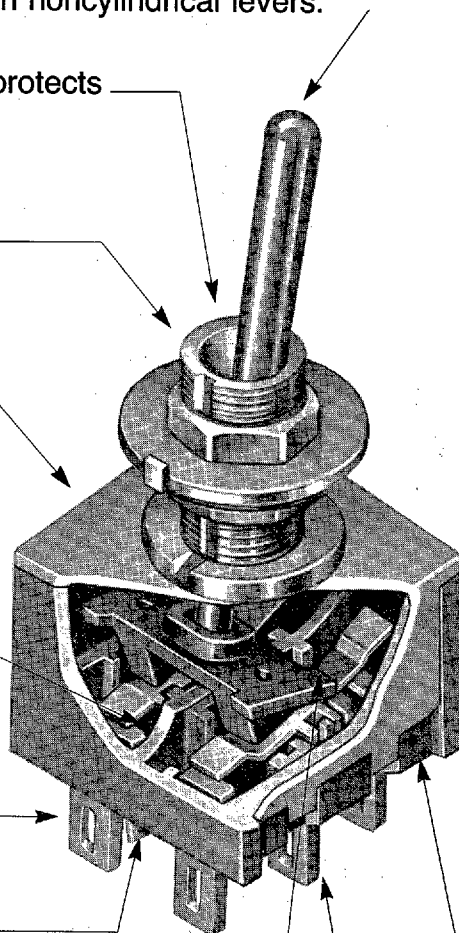
Actual Size



Interlocked actuator block prevents switch failure due to biased lever movement.

Longer center solder lug terminal simplifies wiring and soldering.

Clinching of the frame to the case well above the base and terminals provides 1500V dielectric strength.



Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

NKK Switches:

[MB2011SB1W01-BB](#) [MB2011SB1W02-DC](#) [MB2011SB1W02-DF](#) [MB2011SB1W02-EB](#) [MB2011SB1W02-BA](#)
[MB2011SB1W01-CG](#) [MB2011SB1W03-DC](#)