



GRAYHILL

SERIES 46 SPST and DPDT, 1/4 Amp

FEATURES

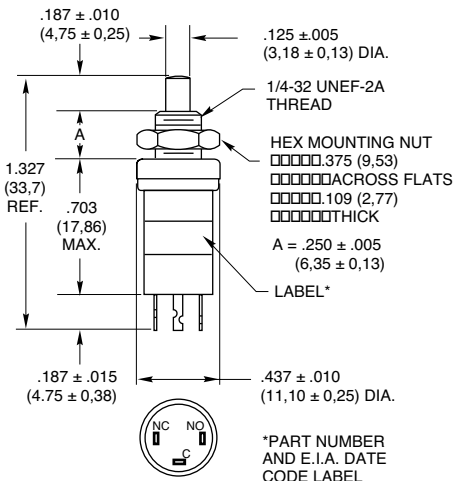
- Long Wipe Contact Assures High Reliability
- 250,000 Cycles of Operation



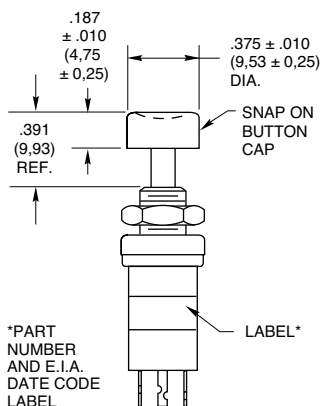
DIMENSIONS in inches (and millimeters)

Single Pole/Double Throw

46-101* (BBM)
46-110* (MBB)



46-102* (BBM)
46-111* (MBB)

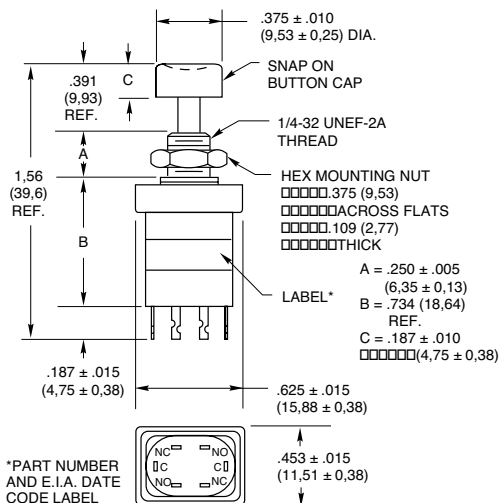


Rating at 115 Vac Resistive	Rating at 220 Vac Resistive	Operations at Rated Load	*Complete Part Number	Button or Cap Color
1/4 Amp	1/8 Amp	250,000	46-101 RED 46-101 BLK 46-102 RED 46-102 BLK 46-110 RED 46-110 BLK 46-111 RED 46-111 BLK	Red Black Red Black Red Black Red Black

Action	Total Travel	Bottoming Force (oz.)	Mtg. Hole
Momentary	.180 (4,57) Min.	17 ± 5	17/64" (6,75)

Double Pole/Double Throw

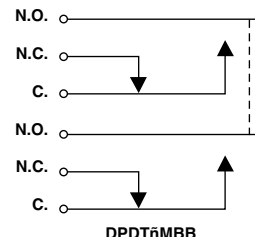
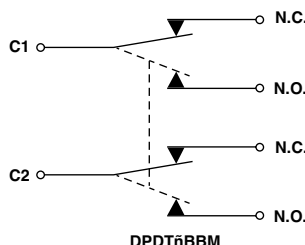
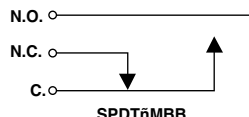
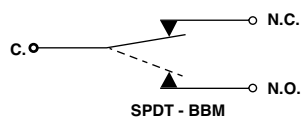
46-200* (BBM)
46-201* (MBB)



Rating at 115 Vac Resistive	Rating at 220 Vac Resistive	Operations at Rated Load	*Complete Part Number	Cap Color
1/4 Amp	1/8 Amp	250,000	46-200 RED 46-200 BLK 46-201 RED 46-201 BLK	Red Black Red Black

Action	Total Travel	Bottoming Force (oz.)	Mtg. Hole
Momentary	.180 (4,57) Min.	35 ± 9	17/64" (6,75)

CIRCUITRY

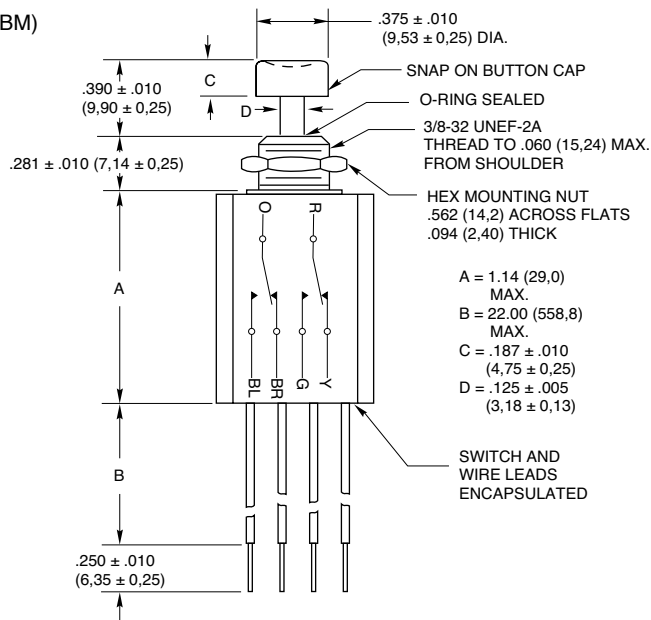




DIMENSIONS in inches (and millimeters)

Environmentally Sealed Double Pole/Double Throw

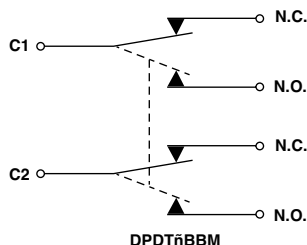
46-260* (BBM)



Rating at 115 Vac Resistive	Rating at 220 Vac Resistive	Operations at Rated Load	*Complete Part Number	Cap Color
1/4 Amp	1/8 Amp	250,000	46-260 RED 46-260 BLK	Red Black

Action	Total Travel	Bottoming Force (oz.)	Mtg. Hole
Momentary	.180 (4.57) Min.	Approx. 45	25/64" (9.92)

CIRCUITRY



SPECIFICATIONS

Rating Criteria

Contact Resistance: Less than 25 milliohms at the switch initially. Less than 4 milliohms/inch of wire.

Voltage Breakdown: 1,000 Vac between mutually insulated parts

Insulation Resistance: 1,000 megohms minimum

Materials and Finishes

Cover, Bushing, Mounting Nut: Brass, tin zinc

Shorting Bar: Phosphor bronze, silver-plated.

Terminals: Phosphor bronze, silver contact surface. Terminal ends are tin/silver

Base or Potting Shell: Phenolic per MIL-M-14, type CFG

Spring: Tinned music wire

Button Cap: Polyethylene

Button: Polyphenylene sulfide (PPS) for 46-200 and 46-201. Polycarbonate for all other unsealed versions. Aluminum for all sealed versions.

O-Ring Seal: Nitrile per MIL-P-5516, class B

Seal Adapter and Hex Nut (46-260): Brass, zinc trivalent chromate-plated

Wire Leads (46-260): Per MIL-W-16878 type E. #26AWG, insulated teflon, copper stranded wire

Operating Features

Break-Before-Make: Rest position to N.C. break .020" (0.51) minimum. Rest position to N.O. Make .140" (3.35) maximum.

Make-Before-Break: Rest position to N.O. make .065" ± .015 (1.65 ± 0.38). Rest position to N.C. break .130" ± .015 (3.30 ± 0.38).

Operating Temperature: -40°C to +85°C

STANDARD OPTIONS

Epoxy sealed terminals and wire leads

Decorative mountings

ACCESSORY



Decorative Mounting Nut
Part No. 30C1023-1
Fits .250" (6.35) Bushing

ORDERING INFORMATION

Description	Part No.
SPDT, BBM, Red Button	46-101 RED
SPDT, BBM, Black Button	46-101 BLK
SPDT, BBM, Red Cap	46-102 RED
SPDT, BBM, Black Cap	46-102 BLK
SPDT, MBB, Red Button	46-110 RED
SPDT, MBB, Black Button	46-110 BLK
SPDT, MBB, Red Cap	46-111 RED
SPDT, MBB, Black Cap	46-111 BLK
SPDT, BBM, Red Cap	46-150 RED
SPDT, BBM, Black Cap	46-150 BLK
SPDT, MBB, Red Cap	46-151 RED
SPDT, MBB, Black Cap	46-151 BLK
DPDT, BBM, Red Cap	46-200 RED
DPDT, BBM, Black Cap	46-200 BLK
DPDT, MBB, Red Cap	46-201 RED
DPDT, MBB, Black Cap	46-201 BLK
DPDT, BBM, Red Cap	46-270 RED
DPDT, BBM, Black Cap	46-270 BLK
DPDT, MBB, Red Cap	46-271 RED
DPDT, MBB, Black Cap	46-271 BLK
DPDT, BBM, Sealed, Red	46-260 RED
DPDT, BBM, Sealed, Black	46-260 BLK

ACCESSORY	
Decorative Nut	30C1023-1



SEALED TERMINAL AND WIRE LEAD OPTIONS OPTION -E AND -EW

FEATURES

- 1/4, 1/2, and 1 Amp
- Limit, Overtravel, or Panel Seal
- Butt or Wiping Contact
- Normally Open or Normally Closed
- Momentary or Push/Pull
- Series 23, 30, 39 and 46



Option -E
Epoxy-Sealed
Terminals



Option -EW,
Potted Base & 6"
Wire Leads

SPECIFICATIONS

Rating Criteria

Make and Break Current Rating: See page for standard part number

Contact Resistance: 25 milliohms maximum on a new switch. Less than 4 milliohms per inch of wire for wire lead option styles.

Insulation Resistance: 1,000 megohms minimum between mutually insulated parts

Voltage Breakdown: 1,000 Vac minimum between mutually insulated parts

Materials and Finishes

Potting Sleeve (Series 39): Thermoset Plastic

Wire Leads: #26AWG, (.99mm diameter) insulated Teflon, Copper stranded wire, per MIL-W-16878, Type E. Ends are stripped 0.250" (6.35) and solder dipped. For other specifications, see Page References.

Standard Part Number Red Button	Standard Part Number Black Button	Choices of Suffix	Length Behind Panel In inches (and millimeters)	
			Standard Switch & Terminals	-EW Style Body
23-1	23-4	-E	0.665 (16,89)	—
30-1	30-3	-E, -EW	0.592 (15,04)	0.645 (16,38)
30-15	30-37	-E, -EW	0.679 (17,25)	0.728 (18,49)
30-17 RED	30-17 BLK	-E, -EW	0.958 (24,33)	1.007 (25,58)
30-16 RED	30-16 BLK	-E, -EW	0.958 (24,33)	1.007 (25,58)
30-251 RED	30-251 BLK	-E, -EW	0.632 (16,05)	0.685 (17,40)
30-252 RED	30-252 BLK	-E, -EW	0.645 (16,38)	0.700 (17,78)
30-32 RED	30-32 BLK	-E, -EW	0.867 (22,02)	0.896 (22,76)
30-6	30-2	-E, -EW	0.605 (15,37)	0.640 (16,26)
30-601 RED	30-601 BLK	-E, -EW	0.592 (15,04)	0.645 (16,38)
39-1*	39-3*	-EW**	0.315 (8,00)	0.440 (11,18)
—	39-2	-E, -EW	0.490 (12,45)	0.575 (14,61)
39-12*	39-24*	-EW**	0.455 (11,56)	0.575 (14,61)
39-101	—	-EW**	0.650 (16,51)	0.775 (19,69)
39-351 RED	39-351 BLK	-EW**	0.350 (8,89)	0.450 (11,43)
39-352 RED*	39-352 BLK*	-E, -EW	0.529 (13,44)	0.630 (16,00)
39-601 RED	39-601 BLK	-EW*	0.315 (8,00)	0.440 (11,18)
39-701***	—	-EW**	0.800 (20,32)	0.925 (23,50)
39-702***	—	-E, -EW	0.510 (12,95)	0.750 (19,05)
46-101 RED	46-101 BLK	-E, -EW	0.890 (22,61)	0.957 (24,31)
46-102 RED	46-102 BLK	-E, -EW	0.890 (22,61)	0.957 (24,31)
46-110 RED	46-110 BLK	-E, -EW	0.890 (22,61)	0.957 (24,31)
46-111 RED	46-111 BLK	-E, -EW	0.890 (22,61)	0.957 (24,31)
46-150 RED	46-150 BLK	-E, -EW	0.957 (24,31)	1.024 (26,01)
46-151 RED	46-151 BLK	-E, -EW	0.957 (24,31)	1.024 (26,01)
46-200 RED	46-200 BLK	-E	0.921 (23,39)	—
46-201 RED	46-201 BLK	-E	0.921 (23,39)	—
46-270 RED	46-270 BLK	-E	0.957 (24,31)	—
46-271 RED	46-271 BLK	-E	0.957 (24,31)	—

*Epoxy potting sleeve enlarges the diameter of the -EW style to 0.300 (7,62).

**Sealed terminal (-E) option is not necessary; terminals have sealed construction.

***Natural Color Button

†Adjustable from 1.214 (30,84) to 1.334 (33,88) dependent on button height, see switch pages.



ORDERING INFORMATION

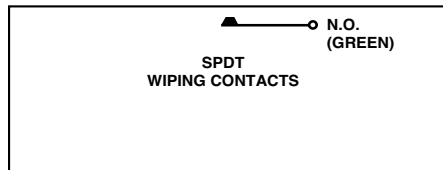
Use the Selector Charts at the beginning of the section to select a series. Use the pages listed there or referenced here to select a switch.

To order epoxy sealed terminals, add the suffix -E to the selected part number as allowed in the chart. **Example:** 30-1-E.

To order the epoxy-potted version with 6-inch wire leads, use the suffix -EW as allowed in the chart. **Example:** 39-1-EW

Available From Your Local Grayhill Distributors. For prices and discounts, contact a local Sales Office, an authorized local Distributor or Grayhill.

CIRCUITRY: Series 46



Standard Part Number Without Options Choice of Button Color (see switch pages)	Standard Part Number Choice of Button Color (see switch pages)	Choices of Options	Length Behind Panel In inches (and millimeters)	
			Standard Switch & Terminals	-EW Style Body
—	30-001-A-XX	-E, -EW	1.119 (28,42)	1.172 (29,77)
—	30-002-A-XX	-E, -EW	1.132 (28,75)	1.167 (29,64)
—	30-015-A-XX	-E, -EW	1.204 (30,58)	1.253 (31,83)
—	30-017-A-XX	-E, -EW	Adjustable†	Adjustable†
30-01-01-500-XX	30-1-1-50-XX	-E, -EW	1.100 (27,94)	1.153 (29,29)
30-01-04-500-XX	30-1-4-50-XX	-E, -EW	1.257 (31,93)	1.310 (33,27)
30-05-01-502-XX	30-5-1-52-XX	-E, -EW	0.930 (23,62)	0.983 (24,97)
30-05-04-502-XX	30-5-4-52-XX	-E, -EW	1.130 (28,70)	1.183 (30,05)
—	30-601-A-XX	-E, -EW	1.119 (28,42)	1.172 (29,77)
46-01-05-500-XX	46-1-5-50-XX	-E, -EW	1.361 (34,57)	1.428 (36,27)
46-01-07-500-XX	46-1-7-50-XX	-E, -EW	1.451 (36,86)	1.518 (38,56)
46-01-08-500-XX	46-1-8-50-XX	-E	1.381 (35,08)	—
46-01-09-500-XX	46-1-9-50-XX	-E	1.381 (35,08)	—
46-05-05-502-XX	46-5-5-52-XX	-E, -EW	1.179 (29,95)	1.246 (31,65)
46-05-07-502-XX	46-5-7-52-XX	-E, -EW	1.465 (37,21)	1.532 (38,91)
46-05-08-502-XX	46-5-8-52-XX	-E	1.188 (30,18)	—
46-05-09-502-XX	46-5-9-52-XX	-E	1.317 (33,45)	—
—	46-102-A-XX	-E, -EW	1.417 (35,99)	1.484 (37,69)
—	46-111-A-XX	-E, -EW	1.417 (35,99)	1.484 (37,69)
—	46-200-A-XX	-E	1.448 (36,78)	—
—	46-201-A-XX	-E	1.448 (36,78)	—

*Epoxy potting sleeve enlarges the diameter of the -EW style to 0.300 (7,62).

**Sealed terminal (-E) option is not necessary; terminals have sealed construction.

***Natural Color Button

†Adjustable from 1.214 (30,84) to 1.334 (33,88) dependent on button height, see switch pages.



GRAYHILL

ACCESSORIES

For Pushbutton Switches

Decorative Mounting Nuts



Button Caps



Button Guard

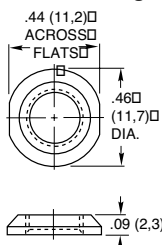


Pendant Housing

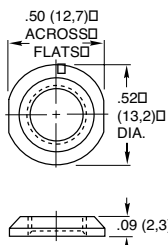


DIMENSIONS in Inches (and millimeters)

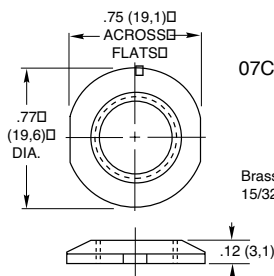
Decorative Mounting Nuts



Brass, nickel-plated for 1/4" (6,35) bushing.

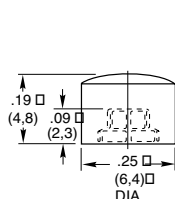


Brass, nickel-plated for 5/16" (7,93) bushing.

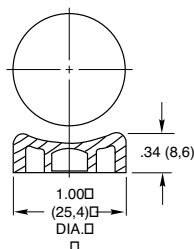


Brass, nickel-plated for 15/32" (11,9) bushing.

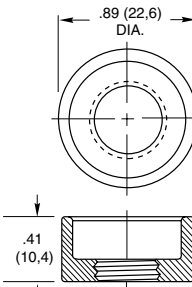
Button Caps and Guard



Thermosetting plastic (Fasten to button with cyanoacrylate adhesive) black, red or white.
For use with all Series 30 and 39 switches except part number 39-101. See switch pages.



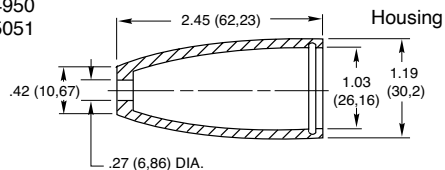
Thermoplastic, black or red color.
For use with Series 2000 and Series 7 switches. See switch pages.



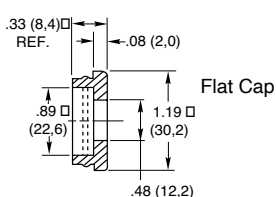
Brass, zinc trivalent chromate-plated for 15/32" (11,9) bushing.

Remote Switching Accessories Pendant Housing and Caps

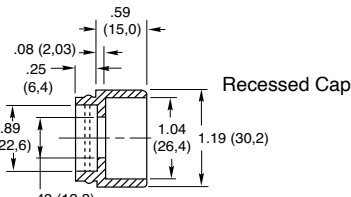
07Z4950
07Z5051



Material: Thermoplastic
Specials: other colors available on special order.



Application:
All Grayhill pushbutton switches with 15/32-32 bushings: catalog numbers 2201, 2202, 07-7, 07-8, 07-21, 07-22, 07-26, 4001, 4002, 10-9, 10-10, 10-100, 10-101, 30-16, 30-17 and 30-32. any other switch with 15/32-32 bushing if it fits housing.



ORDERING INFORMATION:

Mounting Nuts, Button Caps, and Guards

Part Number	Color
07C1040-1	Decorative Nut
23C1024	Decorative Nut
30C1023-1	Decorative Nut
07Z1047-1 BLK	Black Button Cap
07Z1047-2 RED	Red Button Cap
10C1015-1	Button Guard
30B1012-5	Red Cap
30B1012-8	White Cap
30B1012-9	Black Cap

Pendant Housing and Caps

Part Number	Description
07Z4950 RED	Red Flat Cap & Housing
07Z4950 BLK	Black Flat Cap & Housing
07Z5051 RED	Red Rcstd Cap & Housing
07Z5051 BLK	Black Rcstd Cap & Housing

Sold only as sets of one housing and one cap.

Available from your local Grayhill Distributor.

For prices and discounts, contact a local Sales Office, an authorized local Distributor, or Grayhill.