SERIES 42, 43, 44 and 54
1" Diameter, 1 Amp, Standard, Military SR04

FEATURES
- Rugged Construction Ensures Switch Operation for the Life of Your Equipment
- Many Circuitry Options
- MIL Qualified Versions MIL-S-3786/04
- Features Choice Include: Shaft/Panel Seal, Adjustable Stops, PC Termination, UL Recognized

DIMENSIONS in inches (and millimeters)

<table>
<thead>
<tr>
<th>No. of Decks</th>
<th>Dimension A</th>
<th>Dimension B Style</th>
<th>Style M or H</th>
<th>Approx. Weight Grams</th>
<th>No. of Decks</th>
<th>Dimension A</th>
<th>Dimension B Style</th>
<th>Style M or H</th>
<th>Approx. Weight Grams</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1.025 (25.5)</td>
<td>.062 (1.57)</td>
<td>.030 (0.76)</td>
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<td>4</td>
<td>3.351 (85.16)</td>
<td>.312 (7.92)</td>
<td>.280 (7.11)</td>
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<tr>
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<td>.062 (1.57)</td>
<td>.030 (0.76)</td>
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<td>5</td>
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<td>.280 (7.11)</td>
<td>78.5</td>
</tr>
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<td>4</td>
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<td>4.043 (102.69)</td>
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<td>7</td>
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<td>.280 (7.11)</td>
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<tr>
<td>6</td>
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<td>8</td>
<td>4.735 (120.27)</td>
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<td>.280 (7.11)</td>
<td>95.0</td>
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</table>

Note: Common location for a single pole per deck switch. For common location on multi-pole switches, see circuit diagrams.

Grayhill part number and date code marked on detent cover label. Customer part number marked on request. Military part number marked when required. UL recognized markings as required.
CIRCUIT DIAGRAMS: Solder Lug Terminals

Switch is Viewed From Shaft End and Shown in Position No. 1
Note: All common terminals are located above base terminals as shown.

Series 44 & 54
30° Angle of Throw

Series 42 & 43
36° Angle of Throw

Series 44
45° Angle of Throw

Series 44
60° Angle of Throw

Series 44
90° Angle of Throw

Rear Views
SERIES 42
1" Diameter, 1 Amp, PC Mount

FEATURES
- Satisfies High Current Board Level Applications
- 36° Angle of Throw Permits up to Ten Positions
- UL Recognized Versions

DIMENSIONS in inches (and millimeters)

**Standard Style**

- 1.000 ± .010 (25.4 ± 0.25) DIA.
- .219 ± .005 (5.56 ± 0.13)
- .750 ± .010 (19.05 ± 0.25) TYP.
- .375 ± .015 (9.53 ± 0.38) TYP.
- TERMINAL DIMENSIONS AT THIS POINT ARE .050 ± .005 (1.27 ± 0.13) THICK

**Equivalent Styles**

For style 42A36, use 42D36,
For style 44A30, use 44D30
For style 42M36, use 42D36 initially
For style 44M30, use 44D30 initially
For style 42U36, use 42UD36
For style 44U30, use 44UD30

**Circuit Diagram: PC Mount**

Switch is Viewed From Shaft End and Shown in Position No. 1
Note: All common terminals are located above base terminals as shown.

Termination
One-sided termination is standard for switches with 2 to 5 positions per pole. Two-sided termination is standard for switches with 6 thru 10 positions per pole.

6 thru 10 positions per pole and terminals from one side of switch are available on special order. See Special Options, page F-10 or contact Grayhill.

**PC Board Mounting Pattern**

Shown for a two deck switch

**Shaft and Panel Seal: Srs. 42 & 44**

Standard Style

The Series 42/44 Styles, which include the letter “S” with the exception of style “HS”, are watertight sealed to the mounting panel by utilizing the panel seal kit. These switches are built with a front plate that does not have a non-turn tab. The panel seal kit consists of a grooved hex nut, a keyed washer and a keyed panel seal. The grooved hex nut is assembled to the switch bushing. The keyed washer is slid down the bushing slot and seated into the hex nut groove. The seal is likewise assembled to the bushing and hex nut. The keyed washer is required to provide seal integrity in the bushing slot. When assembled to the panel, the grooved nut, backing washer and seal require the same space as a normal mounting nut. Hence, the seal kit does not alter the dimensions. Panel seal kit includes a non-turn washer to be used into a blind hole in the back panel. For panel seal kit part dimensions, see Accessories. Style “HS” switches use a similar sealing method, except the integral assembly nut retains the panel seal. All sealed style switches are provided with a shaft to bushing internal seal.

**Adjustable Stop Switches: Series 42 and 44**

The standard and UL recognized switches are also available with adjustable stops. Two removable stop washers allow you to limit the number of switch positions as needed. A knurled nut is supplied to secure the washers if desired. These switches have no bushing keyway. All other dimensions, ratings, and characteristics are the same as the standard fixed stop styles. Although not military qualified, the adjustable styles are useful in military equipment prototypes. However, when submitting the equipment for government approval, the fixed stop qualified style should be substituted.
SERIES 43  
SERIES 54  
1" Diameter, 1 Amp, Concentric Shafts

FEATURES
- Two Switches in the Panel Space of a Single Shaft Rotary
- Military Qualified Versions MIL-3786/04
- Choice of 10 Positions (Series 43) or 12 Positions (Series 54)

DIMENSIONS in inches (and millimeters)

<table>
<thead>
<tr>
<th>Number of Decks</th>
<th>Dimension A</th>
<th>Dimension B</th>
<th>Approx. Weight Grams</th>
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</thead>
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<tr>
<td>Section “A”</td>
<td>Style A, M or H</td>
<td>Style A, M or H</td>
<td>Series 43</td>
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<tr>
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<td>1.162 (29.51) DIA.</td>
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<tr>
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<td>2.510 (63.5) DIA.</td>
<td>.062 (.16)</td>
<td>60</td>
</tr>
<tr>
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<td>3.105 (78.73) DIA.</td>
<td>.062 (.16)</td>
<td>60</td>
</tr>
<tr>
<td>1 3</td>
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<tr>
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<td>.062 (.16)</td>
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</table>

Note: Common location for a single pole per deck switch. For common location on multi-pole switches, see circuit diagrams.

Grayhill part number and date code marked on detent cover label. Customer part number marked on request. Military part number marked when required.
SERIES 43 and 54
1” Diameter, 1 Amp, Add-A-Pot

FEATURES
- Central Shaft Designed to Operate an Add-On Potentiometer
- Potentiometer Mounting Plates Provided
- Adjustable Stop Standard, Fixed Stop by Order
- Choice of 10 Positions (Series 43) or 12 Positions (Series 54)

DIMENSIONS In inches (and millimeters)

<table>
<thead>
<tr>
<th>Number of Decks</th>
<th>Dimension A</th>
<th>Approx. Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Series 43</td>
<td>Series 54</td>
</tr>
<tr>
<td>1</td>
<td>.974 (24,74)</td>
<td>48</td>
</tr>
<tr>
<td>2</td>
<td>1.320 (33,53)</td>
<td>54</td>
</tr>
<tr>
<td>3</td>
<td>1.666 (42,32)</td>
<td>60</td>
</tr>
</tbody>
</table>

Plated brass spacers for ease of positioning mounting plate driving assembly are available on special request (sold only with switches). The use of spacers is recommended for other than prototype requirements. When ordering switches with spacers, give full details regarding special length, potentiometer being used, etc.

Standard style, concentric shaft, add-a-pot switches have adjustable stops. See Adjustable Stop description.

Plated brass spacers for ease of positioning mounting plate driving assembly are available on special request (sold only with switches). The use of spacers is recommended for other than prototype requirements. When ordering switches with spacers, give full details regarding special length, potentiometer being used, etc.

Grayhill part number and date code marked on detent cover label. Customer part number marked on request. Military part number marked when required.

Two potentiometer mounting plates are supplied. Mounting plates have .261 (6,63) and .380 (9,65) diameter holes respectively for mounting potentiometers with 7/32” and 9/32” bushings. Additional nuts for the through bolts of the switch are provided for adjustment of mounting plate location. Tapered tongue on 1/8” shaft provides coupling to screwdriver slots in potentiometer shafts.
SERIES 54
1" Diameter, 1 Amp, Add-A-Pot

FEATURES
- Military Qualified MIL-3786/04
- Central Shaft Designed to Operate MIL Potentiometer
- Mounting Plate Options Provide Choice of Potentiometer
- Fixed Distance from Switch to Mounting Plate

DIMENSIONS

<table>
<thead>
<tr>
<th>Number of Decks</th>
<th>Dimension A</th>
<th>Weight Grams</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.024 (26.01)</td>
<td>60</td>
</tr>
<tr>
<td>2</td>
<td>1.370 (34.80)</td>
<td>67</td>
</tr>
<tr>
<td>3</td>
<td>1.716 (43.59)</td>
<td>74</td>
</tr>
</tbody>
</table>

Note: Common locations for a single pole per deck switch. For common location on multiple switches, see circuit diagram.

Series 54M Add-A-Pot Switch is a concentric shaft unit with provision for potentiometer mounting. Outer shaft operates switch decks. Inner shaft terminates in tapered tongue, which allows any desired potentiometer to be mounted. The Series 54M Add-A-Pot is qualified to MIL-DTL-3786/4-3. Patent No. 3,297,830.

Grayhill part number and date code marked on detent cover label. Customer part number marked on request. Military part number marked when required.
MILITARY QUALIFIED
Single Shaft Switches
The military styles of the single shaft Series 42 and 44 rotary switches are qualified to MIL-DTL-3786/4, specifically SR04-1. Qualification includes two temperature ranges. Unsealed styles M, MB, MG and MBG are qualified for -65 to 85°C. Unsealed styles H, HB, HG and HBG, plus sealed styles HS, HBS, HGS and HBGS are qualified for -65°C to 125°C. Qualification includes low level switching and shaft grounding as specified in MIL-DTL-3786. Qualification includes 30°, 36°, 45°, 60° and 90° angles of throw with solder lug terminals. The military styles are dimensionally the same as the standard styles with two exceptions. The location of the common dimensionally the same as the standard styles with two exceptions. The location of the common

Two Switches, Concentric Shafts
The M style of the concentric shaft Series 43 and 54 switches is qualified to MIL-DTL-3786/4, specifically SR04-2. Unsealed switches are qualified for -65°C to 85°C in 30°, 36°, 45°, 60° and 90° throws. The standard and military styles of the concentric switches have the same dimensions with the exception of the location of the 3 pole common (see circuit diagrams). The 30° and 36° throws are described in the ordering information. If the 45°, 60° and 90° throws are required, they can be provided in Section A of the Series 54 Rotary Switches; see Standard Options, page J-9.

Add-A-Pot Switches
The military style of the add-a-pot Series 54 switch is qualified to MIL-DTL-3786/4, specifically SR04-3. These unsealed switches are qualified for -65°C to 85°C in 30°, 45°, 60° and 90° throws. The dimensions of the military style add-a-pot switches are not the same as the standard add-a-pot switches; see drawings.

All Qualified Switches
Complete electrical ratings and characteristics for all of these qualified switches are listed on the following pages. Standard variations such as terminals, shaft and/or bushing length etc., which do not affect performance, can be marked as qualified product. Adjustable stops cannot be qualified. Contact Grayhill for details about variations.

MILITARY QUALIFIED SHAFT AND PANEL SEAL:
Styles HS, HBS, HGS and HBGS
The shaft is sealed to the bushing by an internal O-ring per MIL-P-5516B. The bushing is sealed to the panel with a silicone rubber washer and a stainless steel backing washer. The combined uncompressed thickness is 0.055” (1.40). Since this switch has a flat cover, a non-turn washer is supplied (see Panel Seal Kit). If using it, mount it in front of the panel.

Specifications:
Electrical Ratings
Standard Style
Rated: To make and break the following loads:

<table>
<thead>
<tr>
<th>Angle of Throw</th>
<th>30° or 36°</th>
<th>45° or 60°</th>
<th>90°</th>
</tr>
</thead>
<tbody>
<tr>
<td>115 Vac resistive</td>
<td>1 amp</td>
<td>5 amps</td>
<td>5 amps</td>
</tr>
<tr>
<td>6-28 Vac inductive</td>
<td>1 amp</td>
<td>2 amps</td>
<td>2 amps</td>
</tr>
<tr>
<td>115 Vac inductive</td>
<td>0.25 amp</td>
<td>2 amps</td>
<td>2 amps</td>
</tr>
<tr>
<td>115 Vdc inductive</td>
<td>0.02 amp</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>6-28 Vdc inductive</td>
<td>0.10 amp</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>115 Vdc resistive</td>
<td>0.10 amp</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

To carry 10 amps continuously.

Contact Resistance: 50 milliohms maximum
Insulation Resistance: 1,000 megohms minimum
Voltage Breakdown: 1,000 Vac initially (500 Vac or better after most environmental tests).
Life Expectancy: 100,000 mechanical cycles of operation. Note: Actual life is determined by a number of factors, including electrical loading, rate of rotation and environment, as well as maximum voltage breakdown required at the end of life.

UL Recognition—
Styles UA, UD, UM, UP, US and USP
Grayhill styles A and M and their variations (D, P, S and SP) of the Series 42, 43, 44 and 54 rotary switches have been tested by Underwriters Laboratories. The letter U in the style indicates proper marking as required by Underwriters Laboratories. These switches are recognized under file number E35289. The UL rating for the Series 42, 43, 44 and 54 is as follows:

Electrical Parameters: style UA = 1.0 ampere at 125 Vac. Style UM = 1.0 ampere at 125 Vac and also .5 ampere at 125 Vac, inductive load, 0.75 to 0.8 power factor.

Rating based on the following criteria:

Overload: 50 operations at 150% rated AC load

Endurance: 6,000 operations at the rated load with 1000 Vac dielectric strength before and after test

Temperature Rise: Not to exceed 30°C when carrying rated AC load after test.

Note: all dimensional drawings for the standard style Series 42, 43, 44 and 54 also apply to these switches, with the exception that switches are marked per specifications.

Electrical Ratings
Military Style
General Rating: This rating is based on standard Grayhill tests of the Military style switch done at ambient conditions. It is provided for comparison to the Standard Style switch. Charts shown for non-shorting contacts (break before make)

Voltage and Load: As listed in the chart

VOLTAGE 115 VAC RESISTIVE

<table>
<thead>
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<th>CYCLES x 1,000</th>
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</thead>
<tbody>
<tr>
<td>CURRENT (AMPS)</td>
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<tr>
<td>0</td>
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<tr>
<td>0</td>
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</tbody>
</table>

VOLTAGE 30 VDC RESISTIVE

<table>
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<th>CYCLES x 1,000</th>
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<tr>
<td>CURRENT (AMPS)</td>
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<td>0</td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

INDUCTIVE (2.8 HENRIES)

<table>
<thead>
<tr>
<th>CYCLES x 1,000</th>
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<tbody>
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<td>CURRENT (AMPS)</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

Life limiting or failure criteria for these curves are:

Contact Resistance: 50 milliohms maximum
Insulation Resistance: 1,000 megohms minimum between mutually insulated parts
Voltage Breakdown: 1,000 Vac minimum between mutually insulated parts. These switches will carry 10 amps with maximum contact temperature rise of 20°C. Life can be predicted by Grayhill if less critical life characteristics, elevated temperature or reduced pressure is involved.

MIL-S-3786 Electrical Values
Military Style

Grayhill, Inc. • 561 Hillgrove Avenue • LaGrange, Illinois 60525-5997 • USA • Phone: 708-354-1040 • Fax: 708-354-2820 • www.grayhill.com
SPECIFICATIONS:

Style M switches, at 85°C, approximately 68% humidity and sea level pressure and style H and HS at 125°C have been tested to make and break the following loads as stated in MIL-DTL-3786/SR04:
- 250 milliamperes at 28 Vdc resistive, 100 milliamperes at 28 Vdc inductive (2.8 henries); 75 milliamperes at 115 Vac resistive.

These switches have also been tested at reduced barometric pressure (70,000 feet), 25°C at approximately 68% relative humidity to make and break the following loads as stated in MIL-DTL-3786/SR04:
- 200 milliamperes, 28 Vdc resistive;
- 25 milliamperes, 28 Vdc inductive (2.8 henries);
- 20 milliamperes, 115 Vac resistive.

When tested at sea level 25°C and 68% relative humidity with failure criteria of 50 milliohms max. and 750 Vac breakdown voltage, these switches will make and break the following loads:
- 250 mA at 28 Vdc resistive;
- 125 mA at 28 Vdc inductive (2.8 henries);
- 200 mA at 115 Vac, 60 Hz resistive, for 10,000 cycles.

These switches also meet MIL-DTL-3786/SR04 for moisture resistance, medium and high shock, vibration (10 to 2000 cps), thermal shock (-65°C to 125°C), salt spray, explosion and terminal pull.

Materials and Finishes

Standard Style
- Bases: Melamine per (MIL-M-14) ASTM-D-5948
- Cover, Deck Separators, End Plate and Rotor Mounting Plate: Phenolic per (MIL-M-14) ASTM-D-5948
- Mounting Bushings: Brass, tin/zinc-plated.
- Shaft, Cover Plate, Retaining Rings, Through Bolts, Shaft Extensions, Stop Arm, Thrust Washers: Stainless steel
- Rotors: Silver alloy
- Terminals (Except Common): Brass, tin-plated
- Common Plate, Including Solder Lug: Brass, silver-plated .0003" minimum
- Mounting Hardware: Two mounting nuts .094" thick by .562" (14,27) across flats and one internal tooth lockwasher are supplied with each switch.
- Stud Nuts, Mounting Nuts, Lock Washers: Tin/zinc-plated or stainless steel.

Military Qualified
- Bases: Dialyl per (MIL-M-14) ASTM-D-5948
- Cover, Deck Separators, End Plate and Rotor Mounting Plate: Dialyl per (MIL-M-14) ASTM-D-5948
- Mounting Bushings: Brass, tin/zinc-plated.
- Shaft, Cover Plate, Retaining Rings, Through Bolts, Shaft Extensions, Stop Arm, Thrust Washers: Stainless steel
- Detent Balls: Steel, nickel-plated
- Detent Springs: Tinned music wire
- Rotor Contact, Stator (Base) Contacts: Silver alloy
- Terminals (Except Common): Brass, tin-plated
- Common Plate, Including Solder Lug: Brass, silver-plated .0003" minimum
- Mounting Hardware: Two mounting nuts .094" thick by .562" (14,27) across flats and one internal tooth lockwasher are supplied with each switch.
- Stud Nuts, Mounting Nuts, Lock Washers: Tin/zinc-plated or stainless steel.

Additional Characteristics
- Standard Style and Military Qualified
  - Contact: Shorting or non-shorting wiping contacts with over 150 grams of contact force
  - Rotational Torque: 8-115 ounce-inches depending upon the number of poles per deck, number of decks and angle of throw
  - Mechanical Life Expectancy: 100,000 cycles of operation
- Shaft Flat Orientation: Flat opposite contacting position of pole number one (See circuit diagram).
- Stop Strength: For Standard style: 15 pound-inches minimum. For Adjustable stop styles: 12 pound-inches
- Extended Stud: Single shaft switches of six or more decks and concentric shaft switches of a combination of five or more decks (Standard style) or four or more decks (Military style) have longer studs with extra mounting nuts for recommended double end mount.
### CHOICES AND LIMITATIONS: Series 42, 43, 44 and 54

- **A** = Standard, Solder Lugs
- **P** = Standard, PC Mount Terminals
- **D** = Standard, Adjustable Stops
- **S** = Shaft and Panel Seal
- **H** = Military Qualified, 125°C
- **U** = UL Recognized
- **M** = Military Qualified 85°C
- **B** = Military, Grounded Shaft
- **G** = Military, Low Level Rating

### SINGLE SHAFT SWITCHES

<table>
<thead>
<tr>
<th>Series</th>
<th>Style Choices</th>
<th>Angle of Throw</th>
<th>Number of Decks</th>
<th>Poles Per Deck</th>
<th>Positions Per Pole</th>
<th>Shorting or Non-Shorting</th>
</tr>
</thead>
<tbody>
<tr>
<td>42</td>
<td>A S</td>
<td>36°</td>
<td>01 thru 12</td>
<td>1</td>
<td>02 thru 10³</td>
<td>N or S</td>
</tr>
<tr>
<td></td>
<td>UA US</td>
<td></td>
<td>01 thru 12</td>
<td>2</td>
<td>02 thru 05</td>
<td>N or S</td>
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<td>UM²</td>
<td></td>
<td>01 thru 12</td>
<td>1</td>
<td>02 thru 12³</td>
<td>N or S</td>
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<td>M MS²</td>
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<td>01 thru 12</td>
<td>2</td>
<td>02 thru 06</td>
<td>N or S</td>
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<td>MB MBS²</td>
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<td>01 thru 12</td>
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<td>02 thru 04</td>
<td>N or S</td>
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<td>01 thru 12</td>
<td>4</td>
<td>02 or 03</td>
<td>N or S</td>
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<tr>
<td></td>
<td>MBG MBGS²</td>
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<td>01 thru 12</td>
<td>5</td>
<td>02</td>
<td>N or S</td>
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<tr>
<td></td>
<td>H HS</td>
<td></td>
<td>01 thru 4</td>
<td>6</td>
<td>02</td>
<td>N or S</td>
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<td>HG HGS</td>
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#### ADD-A-POLE SWITCHESS

<table>
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<th>Style Choices</th>
<th>Angle of Throw</th>
<th>Number of Decks</th>
<th>Poles Per Deck</th>
<th>Positions Per Pole</th>
<th>Shorting or Non-Shorting</th>
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</thead>
<tbody>
<tr>
<td>54</td>
<td>D UD</td>
<td>30°</td>
<td>01 thru 03</td>
<td>1</td>
<td>02 thru 10²</td>
<td>N or S</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>01 thru 03</td>
<td>2</td>
<td>02 thru 06</td>
<td>N or S</td>
</tr>
<tr>
<td>43</td>
<td>P UP SP USP</td>
<td>36°</td>
<td>01 thru 12</td>
<td>1</td>
<td>02 thru 10³</td>
<td>N or S</td>
</tr>
</tbody>
</table>

**Concentric Shaft Switches**

<table>
<thead>
<tr>
<th>Series</th>
<th>Style Choices</th>
<th>Angle of Throw</th>
<th>Number of Decks</th>
<th>Poles Per Deck</th>
<th>Positions Per Pole</th>
<th>Shorting or Non-Shorting</th>
</tr>
</thead>
<tbody>
<tr>
<td>54</td>
<td>A²</td>
<td>30°</td>
<td>01 thru 03</td>
<td>1</td>
<td>02 thru 12¹</td>
<td>N or S</td>
</tr>
<tr>
<td></td>
<td>UA²</td>
<td></td>
<td>01 thru 03</td>
<td>2</td>
<td>02 thru 06</td>
<td>N or S</td>
</tr>
<tr>
<td></td>
<td>M²</td>
<td></td>
<td>01 thru 03</td>
<td>1</td>
<td>02 thru 10²</td>
<td>N or S</td>
</tr>
<tr>
<td>43</td>
<td></td>
<td>36°</td>
<td>01 thru 03</td>
<td>1</td>
<td>02 thru 10³</td>
<td>N or S</td>
</tr>
</tbody>
</table>

**ADD-A-POLE SWITCHES**

<table>
<thead>
<tr>
<th>Series</th>
<th>Style Choices</th>
<th>Angle of Throw</th>
<th>Number of Decks</th>
<th>Poles Per Deck</th>
<th>Positions Per Pole</th>
<th>Shorting or Non-Shorting</th>
</tr>
</thead>
<tbody>
<tr>
<td>54</td>
<td>D UD</td>
<td>30°</td>
<td>01 thru 03</td>
<td>1</td>
<td>02 thru 10²</td>
<td>N or S</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>01 thru 03</td>
<td>2</td>
<td>02 thru 06</td>
<td>N or S</td>
</tr>
<tr>
<td>43</td>
<td>P UP</td>
<td>36°</td>
<td>01 thru 03</td>
<td>1</td>
<td>02 thru 10³</td>
<td>N or S</td>
</tr>
</tbody>
</table>

1 For Adjustable Stop (with the letter D), use AJ instead of number of positions when ordering.

2 For 45°, 60° or 90° throws in Series 54 switches of these styles, see Standard Options.

3 For single pole switches with the maximum positions per pole, continuous rotation is possible. Specify fixed stop or continuous rotation when ordering single shaft switches. Concentric shaft switches have continuous rotation.

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Styles which include both M and S are not qualified but are made of the same materials and construction as qualified types. For qualified switches with shaft and panel seal, use equivalent HS style.

UM switches are made of the same materials and construction as the M style switches. For military switch UM is not required; use M style.
ACCESSORIES

Internal Tooth Lockwasher—Figure A
For a \( \frac{3}{8}'' \) bushing. Approximately 0.500" (12.7) outside diameter, .022" (0.56) thickness. Material is cadmium-plated steel. Part No. 12Q1272-1
For a \( \frac{1}{4}'' \) bushing. Approximately 0.400" (10.16) outside diameter, .018" (0.46) thickness. Material is steel, tin/zinc plated.

Non-Turn Washer—Figure B
Can be ordered as extra hardware for the Series 5000, 24, 42, 43, 44, 54, 71B, 53, 57 and 59 rotary switches. The internal key of the washer slides into the bushing keyway. The right angle tab locks into a predrilled hole on the back side of the mounting panel. Material is brass, tin/zinc plated. Part No. 12C1087-1

Panel Seal Kit—Figure C
Sold as a separate item to seal the switch bushing to the panel. The kit consists of four items: a grooved hex nut, a keyed washer, a keyed seal and a non-turn washer. Assembly is described on Page J-53. Dimensions of panel seal kit items are shown in Figure C. This kit seals the bushing to the panel; it does not seal the shaft to the bushing. Not usable with adjustable stop switches. Part No. 42-24

ORDERING INFORMATION: Single Shaft Switches, Add-A-Pot Switches

Series: Determined by the type of switch and the angle of throw
Style*: Letter(s) from the Choices and Limitations chart
Angle of Throw: Must agree with Series Number
Number of Decks: As limited by the angle of throw, the poles per deck, switch style and type of contacts

Stop Arrangement: Add letter F to a one pole per deck switch with the maximum number of positions for a stop between position 1 and the last position. Leave blank for continuous rotation
Type of Contacts: \( N = \) Non-shorting; \( S = \) Shorting
Positions Per Pole: Requires 02 positions as a minimum to maximum allowable dependent on the angle of throw and poles per deck. Use AJ for adjustable stops (Styles D and UD).
Poles Per Deck: As limited by angle of throw, switch series and style

* All rotary switches that are required to have military designated markings and testing adhering to MIL-3786 are to be ordered by specifying the military part number identified on the appropriate slash sheet.

ORDERING INFORMATION: Concentric Shaft Rotary Switches

Series: Determined by the angle of throw, applicable to both sections
Style*: Letter(s) from the Choices and Limitations chart

Section A (front)
Number of Decks: As limited by the number of poles per deck
Poles Per Deck: As limited by the angle of throw
Positions Per Pole: Requires 02 positions as a minimum to the maximum allowable dependent on the angle of throw and the poles per deck
Type of Contacts: \( N = \) Non-shorting, \( S = \) Shorting. All one pole per deck switches with the maximum number of positions are continuous rotation

Section B (rear)
The limitations listed for Section A apply to Section B
Type of Contacts
Positions Per Pole
Poles Per Deck
Number of Decks
Style

* All rotary switches that are required to have military designated markings and testing adhering to MIL-3786 are to be ordered by specifying the military part number identified on the appropriate slash sheet.

Available from your local Grayhill Distributor
For prices and discounts, contact a local Sales Office, an authorized local Distributor or Grayhill.
Grayhill:
423481-1-03N 42D36-01-1-AJN 42D36-01-2-AJN 42D36-02-1-AJN 42HS36-01-1-04N 42P36-04-1-04N 44D30-01-1-AJN 44D30-01-2-AJN 44D30-02-1-AJN 44D30-03-1-AJN 44D30-04-1-AJN 44HS30-01-1-12N 44M30-03-1-03N 44HS30-02-1-12N 44UD30-06-1-AJN 42D36-05-1-AJN 42M36-02-2-04N 44H30-04-1-11N 44S30-04B12S 44MBG30-01B03N 44US30-04-1-12N 44HS45-03-2-02N 44M45-01-1-02N 44MS90-10-1-03N 42HS36-04-1-05N 44HS30-02-3-04S 44HS30-06-1-07S 44M60-03-2-03N 42M36-04-1-08S 44MG30-01-1-05N 44D30-10-1-AJN 44MS30-02-1-12N 44MS45-02-1-04S 42HS36-02-1-05N 44HS90-05-1-02N 44HS30-08-2-06S 44UA30-02-1-12N 42H36-01-1-10N 42A36-04-1-05S 42S36-02-2-05N 44HS30-03-4-03N 44D30-05-1-AJN 44MG45-02-1-02N 44H45-02-2-03N 44HS30-01B12S 42A36-05-2-04N 44M30-10-1-12N 44M30-02-1-06S 44HS60-01-2-03N 42P36-02-1-10N 42SP36-12-1-02N 44HB60-01B06N 44HBGS30-04C05N 44S60-02B06N 44MS30-01-1-07N 44S30-02-1-06N 44M30-06-1-02N 44S30-04-2-06N 44M30-02-1-03S 44HG45-04-1-07N 42UP36-02-1-03N 54UA-1CC-1CC 44MS30-08-1-08N 44M30-02-6-02S 44M45-01-1-07N 42P36-03-1-10N 44M45-05-1-06S 44H30-03-1-04N 43M-2BC-1CC 44HS60-04-1-05N 44M45-08-1-02N 54A-1BW-1CQ 44D30-02-2-AJS 44MS30-04-2-03N 44MS90-02B04N 42M36-01-1-10N 43A-1AJ-1CQ 42US36-04-1-10N 44HS45-01-1-03S 44HBGS0-02B03N 44S45-01-1-05S 44HGS30-03C06N 44M45-04-1-07N 44MS30-06-1-07N 43D36-02-1-AJS 44MBG45-06B04N 44H90-02B04N 42350-1-02N 42M36-09-2-04N 44HS30-02-1-05N 44HS30-01-1-09S 42P36-01-1-04S 44M30-01-1-06N 42H36-01-1-05N 44S45-04-1-04S 44M30-02-6-02N 44UA45-02B08N 44HB30-01-1-05N 44MGS30-06E03N 44S90-01-2-02N