

# 13000 SERIES

## PROFESSIONAL QUICK-BREAK MOMENTARY PUSHBUTTON SWITCHES

### Specifications

#### ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
  - silver contacts (A-AD2) : 2A 250VAC - 4A 125VAC - 4A 30VDC
  - gold plated contacts (CD) : 100mA 30V
- Minimum load (AD2-CD contacts) : 10mA 50mV, 10µA 5V min.
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength :
  - 1.000 Vrms 50 Hz min. between terminals
  - 2.000 Vrms 50 Hz min. between poles and between terminals and frame
- Contact bounce : 2 ms max.
- Electrical life :

Contacts	Max. current/voltage rating	Number of cycles
A	2A 250VAC - 4A 125VAC - 4A 30VDC	50.000
AD2	2A 250VAC - 4A 125 VAC - 4A 30VDC (gold plating : 30V - 100mA max.)	20.000
CD	100mA 30VDC	50.000
	Low level or mechanical life	150.000

#### MATERIALS

- Case : diallylphthalate (DAP)
- Actuator : brass, chrome plated
- Bushing : brass, nickel plated
- Housing : brass, nickel plated
- Contacts :
  - A** : silver
  - AD2** : silver, gold plated (2 micron gold)
  - CD** : brass, gold plated
- Terminal seal : epoxy

Note : AD2 contacts can be used for high level applications. In this case, the gold layer is considered only as a protection against oxidation during storage.

#### GENERAL SPECIFICATIONS

- Torque : 1,25 Nm (.922 Ft.lb) max. applied to nut
- Standard panel thickness : 2 mm (.078 ) max.
- Total travel : 2 mm (.078)
- Operating temperature : -40°C to +85°C

#### RELIABILITY - RUN-IN TEST

Upon request, each individual switch can be submitted to a low level run-in test of 50 or 250 cycles to ensure suitability for special applications requiring a very high level of reliability (military, space,etc.).

#### AGENCY APPROVALS/PREFERENTIAL LISTS



CECC 96401-001

**QPL** (Europe only)

**MUAHAG**

Designed to **MIL** specifications

**Availability :**

UL : all models with silver or gold plated silver contacts

CECC : consult factory for details of approved models.

**Marking :** to order switches marked UL or CECC, complete appropriate box of ordering format.

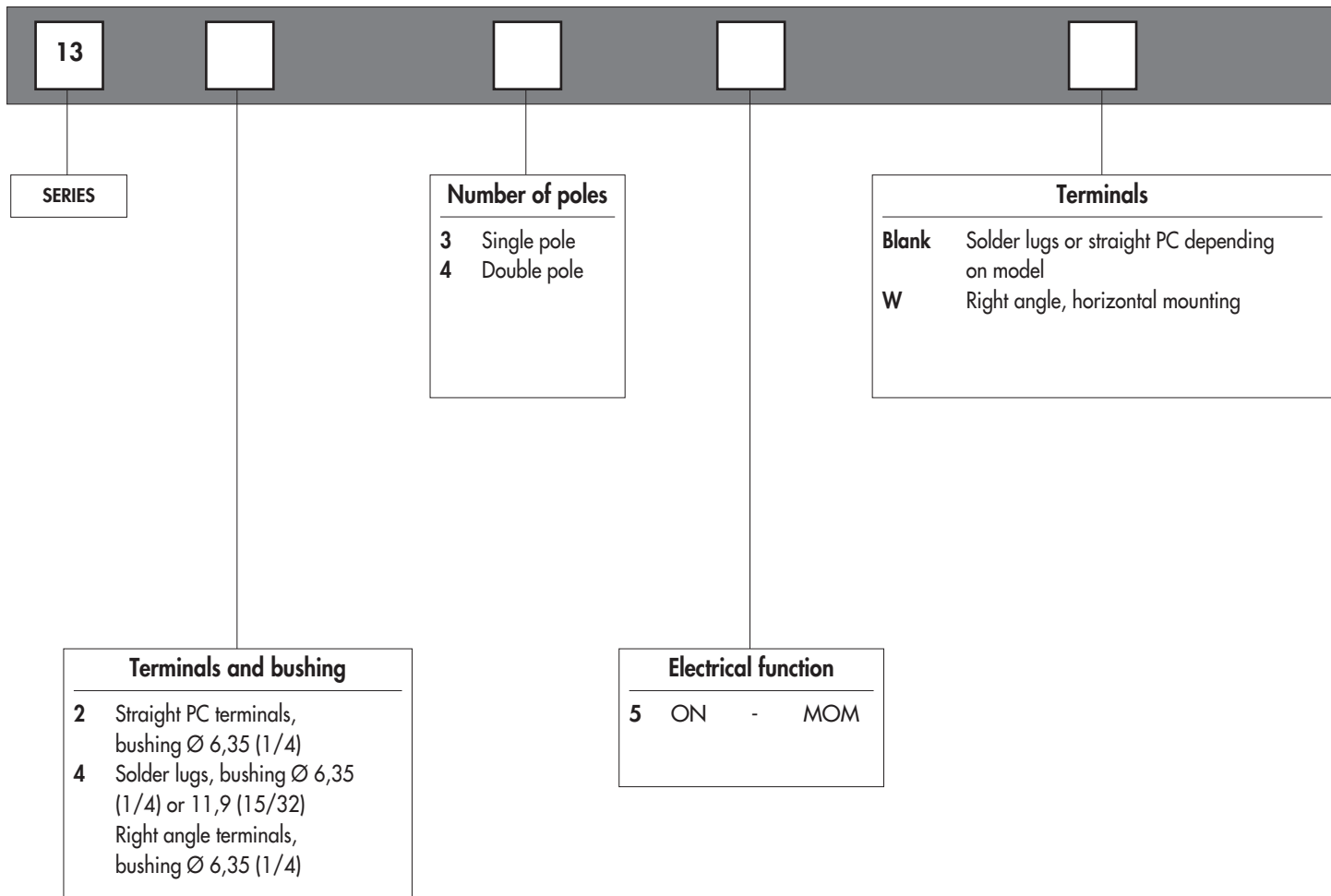
Preferential lists do not appear on the switches.

# 13000 SERIES

## PROFESSIONAL QUICK-BREAK MOMENTARY PUSHBUTTON SWITCHES

### Overview

MODEL  
STRUCTURE



#### ABOUT THIS SERIES

On the following pages, you will find successively :

- specifications
- model structure of switches
- options in the same order as in above chart

**Dimensions** : first dimensions are in mm while inches are shown as bracketted numbers.



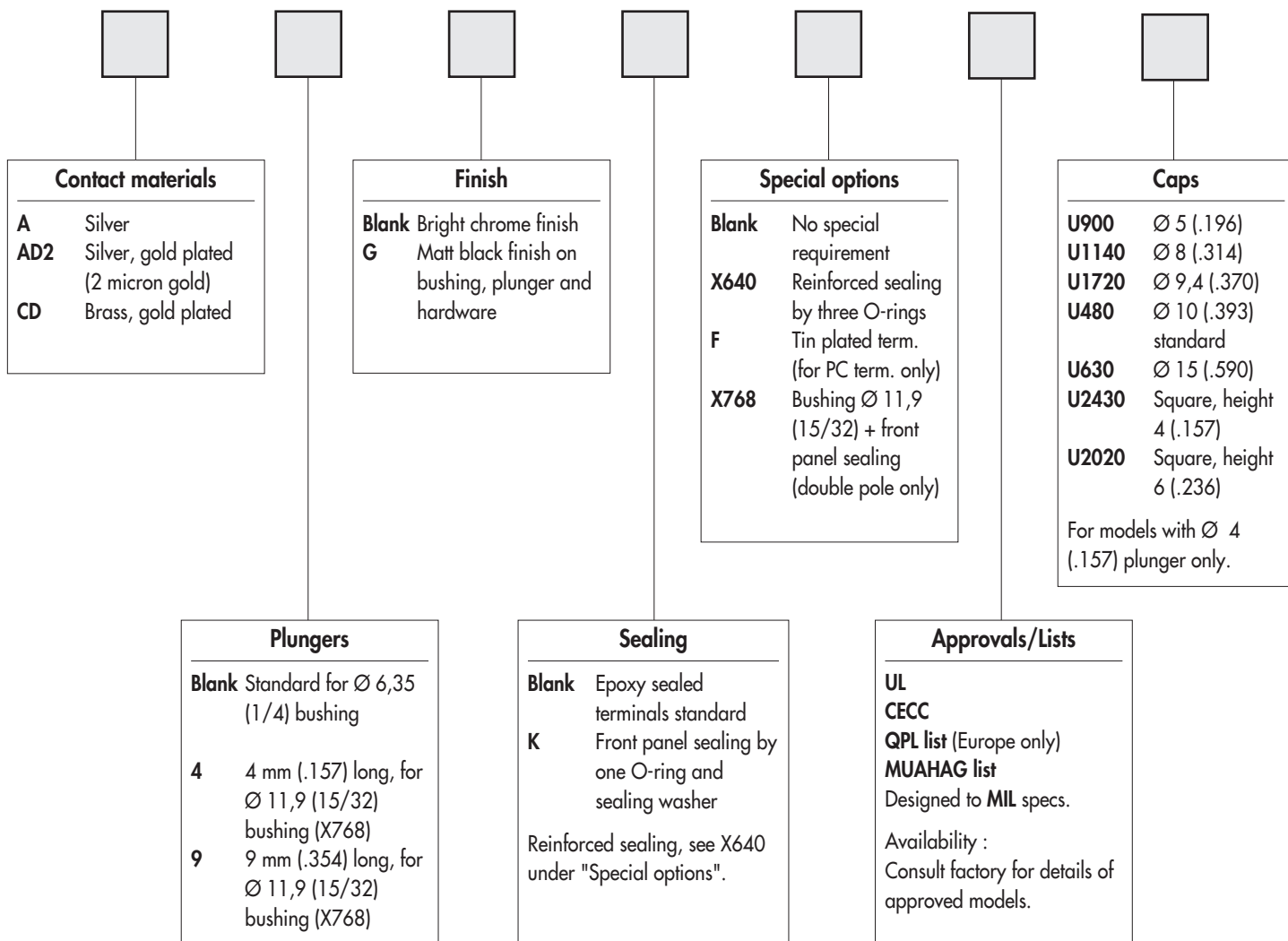
**NOTICE** : please note that not all combinations of above numbers are available.  
Refer to the following pages for further information.

# 13000 SERIES

## PROFESSIONAL QUICK-BREAK MOMENTARY PUSHBUTTON SWITCHES

### Overview

OPTIONS



**Sealing boots** are available to protect the switches against dust and water. They are presented in section N.



**Mounting accessories** : standard hardware supplied with all models : 2 hex nuts 8 mm (.314) across flats, 1 locking ring and 1 lockwasher.  
Standard and special hardware available are presented in section N.



**Packaging unit** : 50 pieces.

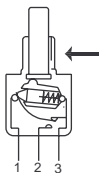
# 13000 SERIES

## PROFESSIONAL QUICK-BREAK MOMENTARY PUSHBUTTON SWITCHES

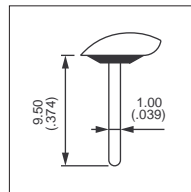
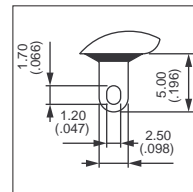
Solder lug terminals : 13400 - Straight PC terminals : 13200

MODEL  
STRUCTURE

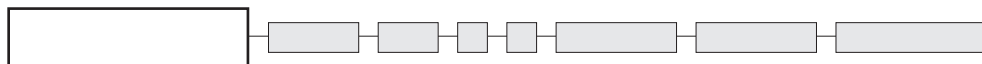
→ Keyway



- Threaded bushing  $\varnothing 6,35$  mm (1/4)
- Epoxy sealed terminals standard



MODEL  
STRUCTURE



### Solder lug terminals : 13400

→ Keyway



Single pole  
13435

Double pole  
13445



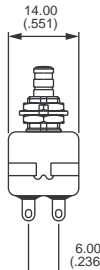
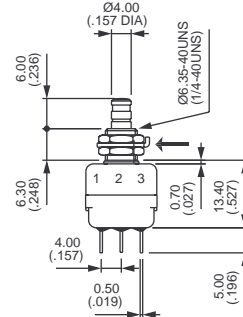
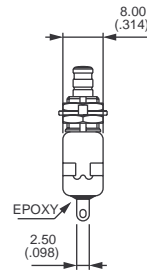
1-3

ON



1-2

MOM



### Straight PC terminals : 13200

→ Keyway



Single pole  
13235

Double pole  
13245



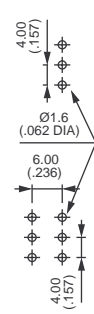
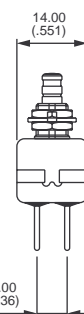
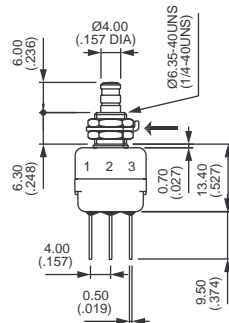
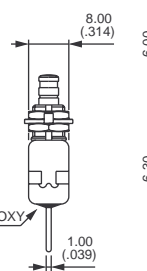
1-3

ON



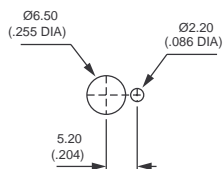
1-2

MOM

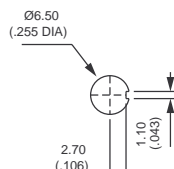


### PANEL CUT-OUT

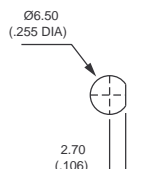
#### 13400 - 13200



Standard



With K  
sealing option



With X640  
sealing option

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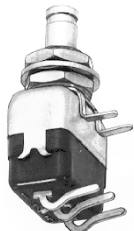
### Right angle terminals : 13400W

OPTIONS

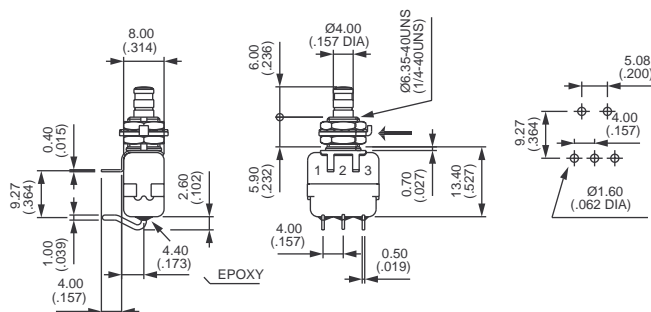
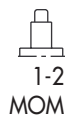


#### Right angle terminals - single pole

→ Keyway

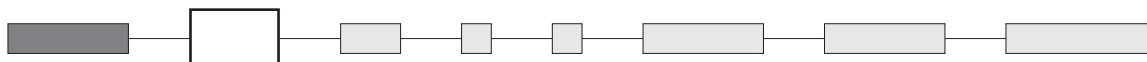


13435W



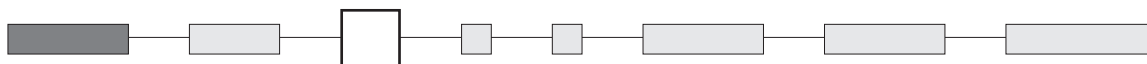
Panel cut-out, see previous page.

#### CONTACT MATERIALS



A	Silver
AD2	Silver, gold plated (2 micron gold)
CD	Brass, gold plated

#### PLUNGER



Dash compulsory before plunger code.

Blank	Standard plunger for Ø 6,35 (1/4) bushing
-4	4 mm (.157) long plunger for Ø 11,9 (15/32) bushing (X768 option)
-9	9 mm (.354) long plunger for Ø 11,9 (15/32) bushing (X768 option)

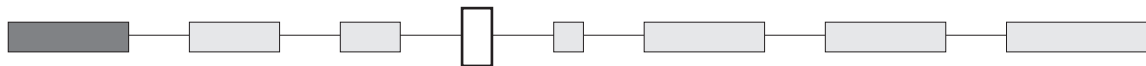
# 13000 SERIES

## PROFESSIONAL QUICK-BREAK MOMENTARY PUSHBUTTON SWITCHES

OPTIONS



### FINISH



**Blank** Bright chrome finish

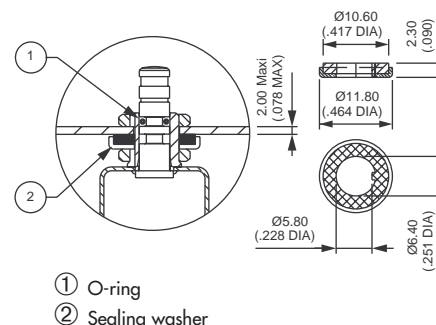
**G** Matt black finish on bushing, actuator and hardware

### SEALING

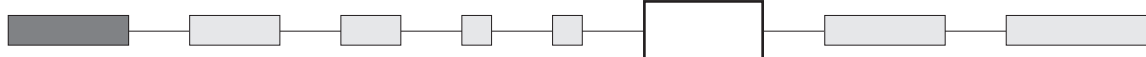


**K** Front panel sealing by one O-ring and sealing washer. Protects the switch against water and dust. Panel seal withstands 1 bar pressure and remains sealed even when switch is operated.

Reinforced sealing : see X640 under "Special options".



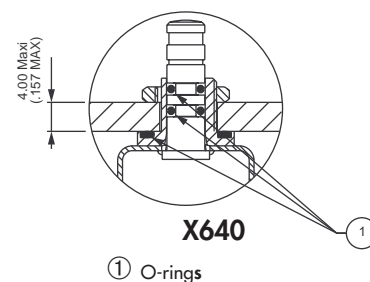
### SPECIAL OPTIONS



**X640** Front panel sealing by three O-rings. Flatted bush for precise orientation. Protects the switch against water and dust. Panel seal withstands 1 bar pressure and remains sealed even when switch is operated.



Available on models with Ø 6,35 (1/4) bushing only.



**F** Tin plated terminals (for PC terminals only)

**X935** C-ring on plunger for positive stop

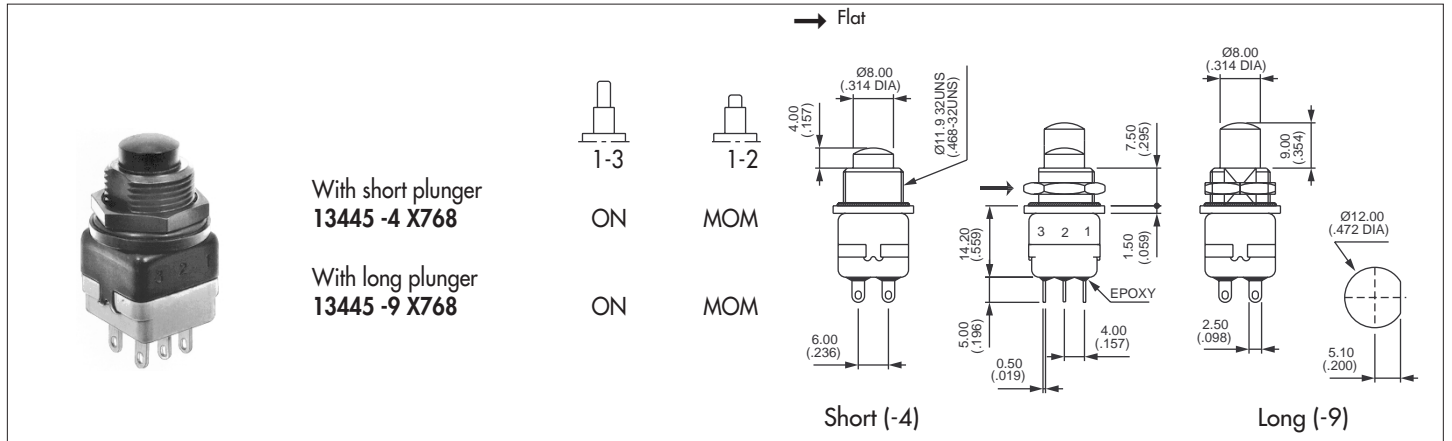
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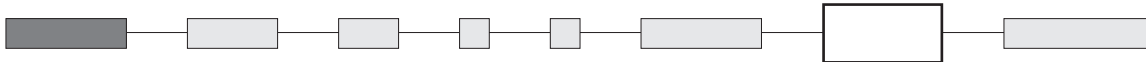
OPTIONS



**X768** Sealed switch with  $\varnothing 11,9$  (15/32) flatted bushing. Solder lug terminals, double pole. Contact and finish options available.



### AGENCY APPROVALS



UL

CECC CECC 96401-001

#### Availability :

UL : all models with silver or gold plated silver contacts

CECC : consult factory for details of approved models.

**Marking :** to order switches marked UL or CECC, please complete above box with desired approval.

Blank : no agency approval required.

Preferential lists : see specifications.

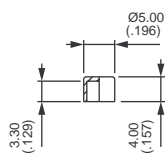
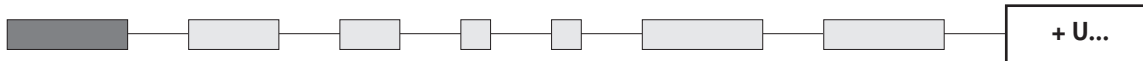
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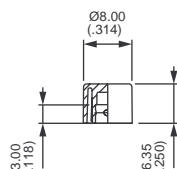
OPTIONS



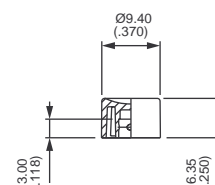
### CAPS



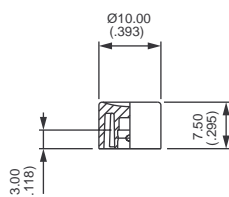
**U900**



**U1140**

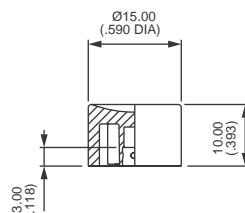


**U1720**



**U480**

Standard



**U630**

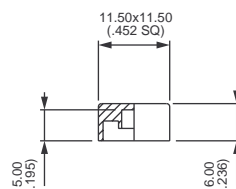


For models with Ø 6,35 (1/4) bushing only.

#### Cap colours

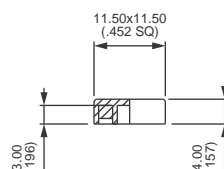
Replace  
last "0" by  
number

- |     |        |
|-----|--------|
| 1   | blue   |
| 2   | black  |
| 3   | green  |
| 4   | grey   |
| 5   | yellow |
| 6   | red    |
| 7   | ivory  |
| 7/1 | white  |
| 9   | orange |



**U2020**

Square



**U2430**

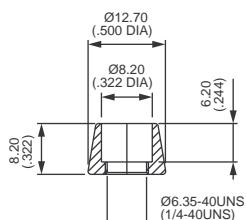
Square

### DRESS NUTS

Chrome plated

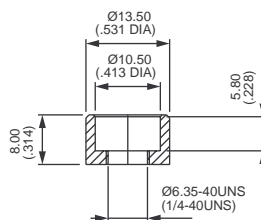


For models with Ø 6,35 (1/4) bushing only.



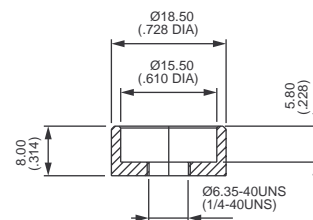
**U1636**

For cap U1140



**U840**

For cap U480



**U825**

For cap U630

Dress nuts are to be ordered separately.