AV SERIES PUSHBUTTON SWITCHES

Distinctive features

- ❑ **Attractive, robust and durable**
  - **Irremovable**
  - **Anti-jamming construction : reduced travel to prevent insertion of foreign parts**
  - **Contact and mechanism protected against crushing**
  - **Fire resistant**
  - **Long life**
- ❑ **Sealed versions**
- ❑ **Degrees of protection (switches mounted on vertical panels) :**
  - standard version : IP54
  - sealed version : IP65

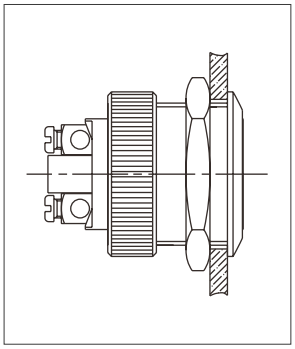


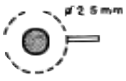
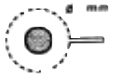
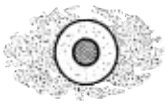
Table explaining degrees of protection (IP and IK codes)

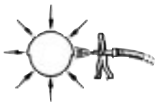
The degree of protection is indicated by 2 letters and 2 numbers.
Example : I P 6 5

protection against water
protection against dust

IP•• degree of protection provided by the enclosures of electric appliances according to IEC 529 and DIN 40050.

IK.•• degree of protection provided by the enclosures of electric appliances against external mechanical impacts according to EN 50102 (NFC 20-015).

1st number : protection against ingress of solid objects		
IP	**tests**	
0		Non-protected
1		Protected against solid objects of 50 mm (1.968) and greater
2		Protected against solid objects of 12,5 mm (.492) and greater
3		Protected against solid objects of 2,5 mm (.098) and greater
4		Protected against solid objects of 1 mm (.039) and greater
5		Dust-protected (no harmful ingress)
6		Dust-tight (no ingress)

2nd number : protection against liquids		
IP	**tests**	
0		Non-protected
1		Protected against vertically falling water drops
2		Protected against vertically falling water drops when enclosure tilted up to 15°
3		Protected against water sprayed vertically at an angle up to 60°
4		Protected against splashing water
5		Protected against water jets from any direction

IK code : mechanical protection
The degree of mechanical protection is now defined by the **letters IK** according to EN 50102 of June 1995 (NFC 20-015) It is only applicable to the "Anti-vandal" switch family. See following pages.

Packaging unit : 20 or 40 pieces depending on models, except AV..4700 (10 pieces), AV06 (60 pieces), AV22P, AV22L and AV24L with anodised plunger (16 pieces).

Mounting accessories : Standard and special hardware are presented in section N.

K

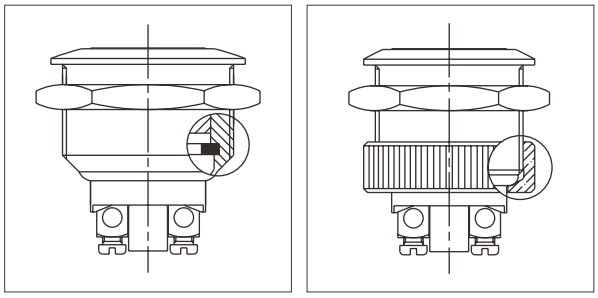
AV SERIES PUSHBUTTON SWITCHES

Distinctive features

The AV series is a large range of security pushbutton switches including 4 product families :

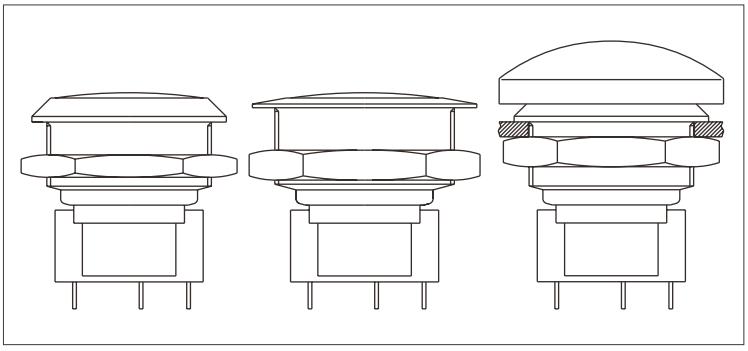
ANTI-VANDAL PUSHBUTTON SWITCHES (page K-4)

- Increased impact resistance provided by a nut or mechanical stop
- Stainless steel actuator and bushing



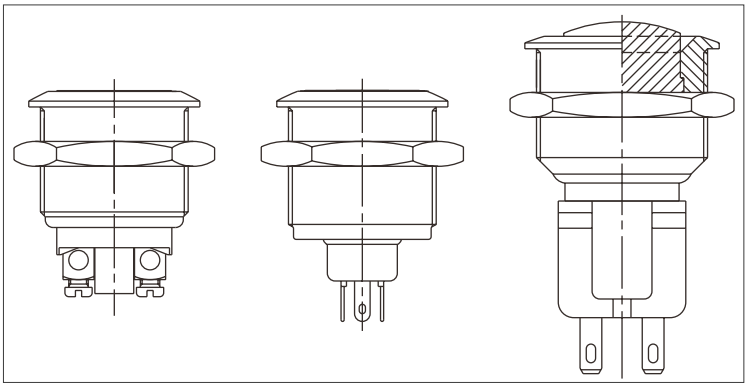
SECURITY PUSHBUTTON SWITCHES WITH LARGE ACTUATOR (page K-7)

- Ergonomic actuator dia. 20 mm (.787) or 30 mm (1.181)
- Tactile feedback
- Up to 5A 250VAC



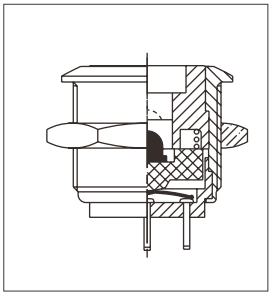
OTHER SECURITY PUSHBUTTON SWITCHES (page K-10)

- **A large variety** of actuator shapes, electrical functions, connections, finish and marking options



SNAP-ACTION SECURITY PUSHBUTTON SWITCHES (page K-15)

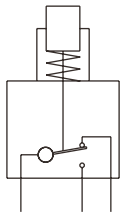
- Tactile feedback
- Illuminated or non-illuminated



K

AV SERIES
SECURITY PUSHBUTTON SWITCHES WITH LARGE ACTUATOR
Bushing Ø 22 (.866)

MODEL STRUCTURE



Combined NC/NO

ORDER FORMAT

Series	Bushing diameter	Bush./act. config.	Actuator style	Bush./act. matl	Contact/ terminals
AV	22	L	P B C	40	2 4

See next page.

SPECIFICATIONS

- Max. current/voltage rating with resistive load : 5A 250VAC
- Initial contact resistance : 100 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength : 2.000 Vrms 50 Hz min. between terminals and frame
- Electrical life : 1.000.000 cycles at 1A 250VAC
  100.000 cycles at full load
- Torque : 5 Nm min.- 14 Nm max. applied to nut
- Panel thickness : 1 (.039) to 6 mm (.236) max.
- Operating temperature : -20°C to +55°C
- Mechanical life : 3.000.000 cycles
- Front panel sealing : IP65

MATERIALS

- Case : polyester, glass filled
- Contacts : silver/nickel alloy
- Bushing : stainless steel (std)
- Actuator : stainless steel (std)

CUT-OUT

- Panel cut-out : Ø 22,2 (.874)
  or Ø 24,2 (.952)
- Min. pitch for matrix mounting :
  30 mm x 30 mm (1.181x1.181)

All model numbers below are for switches with standard bushing/actuator material.

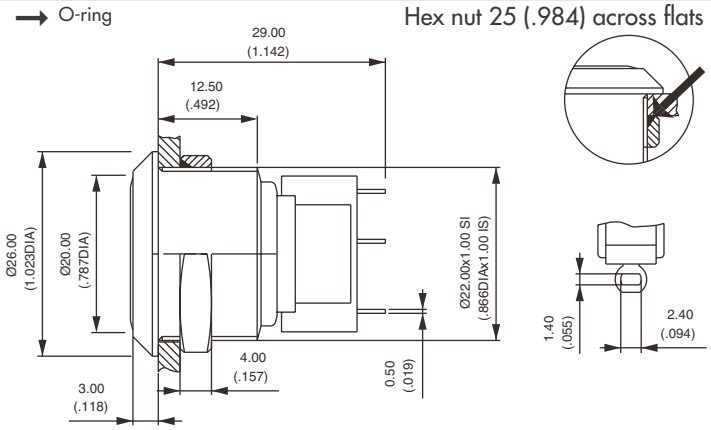
BASIC MODEL

Flat actuator - solder lug terminals - AV22LP



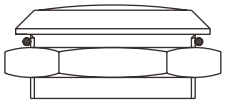
AV22LP402





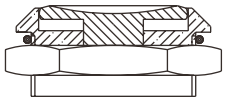
OTHER CONFIGURATIONS

Curved actuator



AV22LB402

Recessed actuator



AV22LC402

K

AV SERIES
SECURITY PUSHBUTTON SWITCHES WITH LARGE ACTUATOR
Bushing Ø 24 (.944) - low profile

OPTIONS

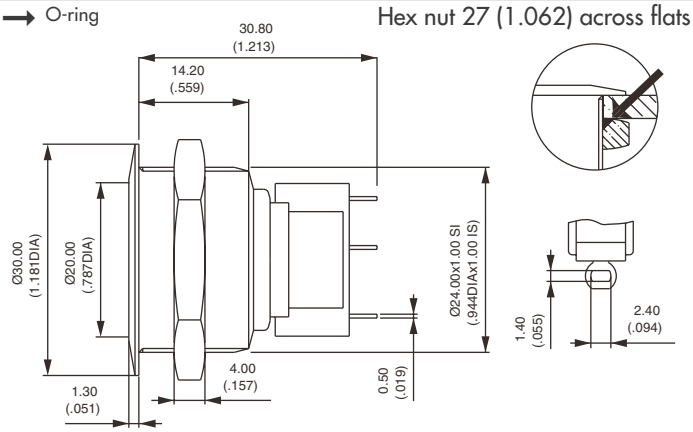
BASIC MODEL

Flat actuator - solder lug terminals - AV24LP



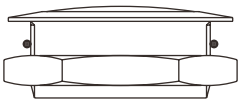
AV24LP402





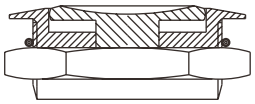
OTHER CONFIGURATIONS

Curved actuator



AV24LB402

Recessed actuator



AV24LC402

BUSHING/ACTUATOR MATERIAL

For non-standard material, replace **40** with one of the following codes.

Models with non-anodized actuator

CODE	BUSHING	ACTUATOR
40 (standard)	**Stainless steel**	**Stainless steel**
20	Chrome plated brass	Chrome plated brass

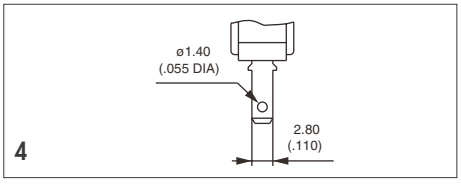
Models with anodized actuator

CODE	BUSHING	ACTUATOR COLOUR
1•	Black chrome plated brass	Replace • with colour code opposite.
2•	Chrome plated brass	
4•	Stainless steel	

Colours
2 : black
3 : pale green
5 : gold yellow
6 : red

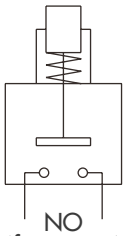
CONTACT / TERMINALS

2 (standard)	NC/NO, solder lug terminals
4	NC/NO, quick-connect terminals



AV SERIES
SECURITY PUSHBUTTON SWITCHES
Bushing Ø 19 (.748)

MODEL STRUCTURE



ORDER FORMAT

Series	Bush./act. config.	Case style	Function	Contact matl.	Term. type	Bush./act. material	Marking	Sealing
AV		100	3	C		00		
	09 19 9P 9B				9 2			K

See "options" page.

SPECIFICATIONS

- Max. current/voltage rating with resistive load : 2A 48 VDC
- Initial contact resistance : 10 mΩ max. at 1A 2V
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength :
  2.000 Vrms 50 Hz min. between terminals and frame
  2.000 Vrms 50 Hz min. between terminals
- Electrical life : 10.000 cycles at full load
- Torque : 5 Nm min.- 14 Nm max. applied to nut
- Panel thickness : 1 (.039) to 11 mm (.433) max.
- Operating temperature : -20°C to +55°C
- Mechanical life : 1.000.000 cycles

MATERIALS

- Case : PBT
- Contacts : brass, silver plated (C)
- Bushing : brass, nickel plated (std)
- Actuator : brass, nickel plated (std)

CUT-OUT

- Panel cut-out :
  Ø 19,2 mm (.755)
- Min. pitch for matrix mounting :
  30 mm (1.181) x 30 mm (1.181)

All model numbers below are for switches with standard bushing/actuator material, without marking.

BASIC MODEL

Flat actuator - AV09..00

Hex nut 22 (.866) across flats

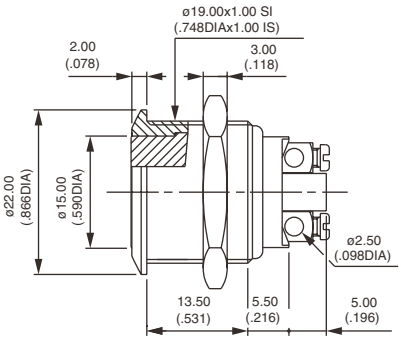


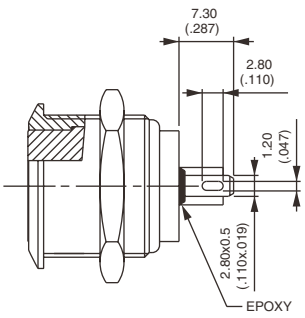
Screw terminals
AV091003C900



Solder lug / quick-connect term.
AV091003C200

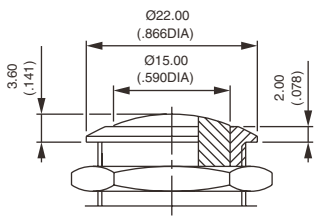






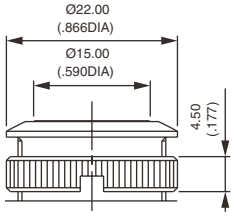
OTHER CONFIGURATIONS

Curved actuator

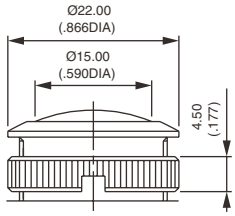


Screw terminals
AV191003C900
Solder lug / quick-connect terminals
AV191003C200

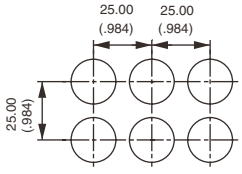
With knurled nut for matrix mounting 25 (.984) x 25 (.984)



Flat actuator, screw term.
AV9P1003C900
Flat actuator, solder lug term.
AV9P1003C200



Curved actuator, screw term.
AV9B1003C900
Curved act., solder lug term.
AV9B1003C200

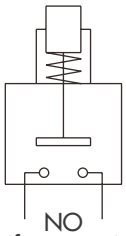


Wrench available under P/N **U1929**.

K

AV SERIES
SECURITY PUSHBUTTON SWITCHES
Bushing Ø 22 (.866)

MODEL STRUCTURE



ORDER FORMAT

Series	Bush./act. config.	Case style	Function	Contact matl.	Term. type	Bush./act. material	Marking	Sealing
AV		100	3	C		00		
	03 02 M3 M2				9 2			K

See "options" page.

SPECIFICATIONS

- Max. current/voltage rating with resistive load : 2A 48 VDC
- Initial contact resistance : 10 mΩ max. at 1A 2V
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength :
  2.000 Vrms 50 Hz min. between terminals and frame
  2.000 Vrms 50 Hz min. between terminals
- Electrical life : 10.000 cycles at full load
- Torque : 5 Nm min.- 14 Nm max. applied to nut
- Panel thickness : 1 (.039) to 11 mm (.433) max.
- Operating temperature : -20°C to +55°C
- Mechanical life : 1.000.000 cycles

MATERIALS

- Case : PBT
- Contacts : brass, silver plated (C)
- Bushing : brass, nickel plated (std)
- Actuator : brass, nickel plated (std)

CUT-OUTS

- Panel cut-out :
  Ø 22,2 mm (.874)
- Min. pitch for matrix mounting :
  30 mm (1.181) x 30 mm (1.181)

All model numbers below are for switches with standard bushing/actuator material, without marking.

BASIC MODEL

Flat actuator - AV03..00

Hex nut 25 (.984) across flats

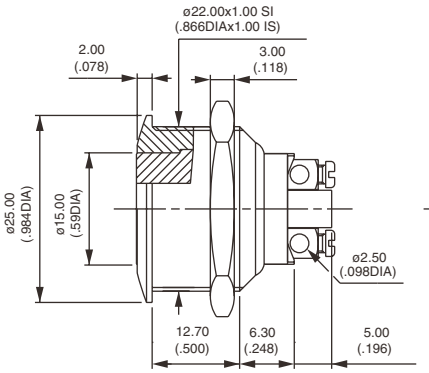


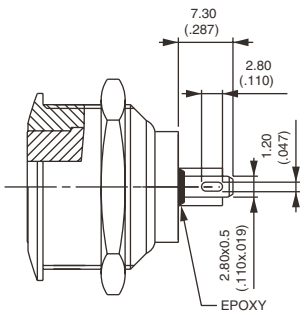
Screw terminals
AV031003C900



Solder lug /
quick-connect term.
AV031003C200



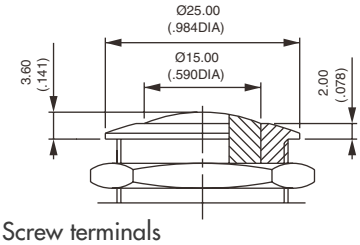




K

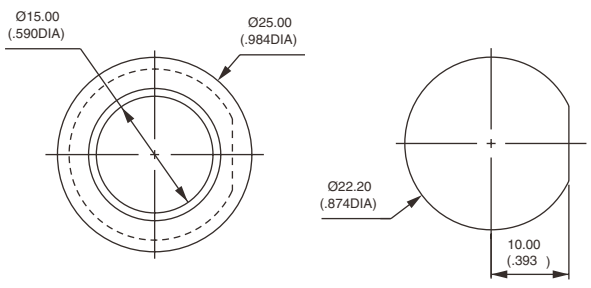
OTHER CONFIGURATIONS

Curved actuator



Screw terminals
AV021003C900
Solder lug / quick-connect terminals
AV021003C200

Flatted bushing



Flat actuator
Screw terminals
AVM31003C900

Curved actuator
Screw terminals
AVM21003C900

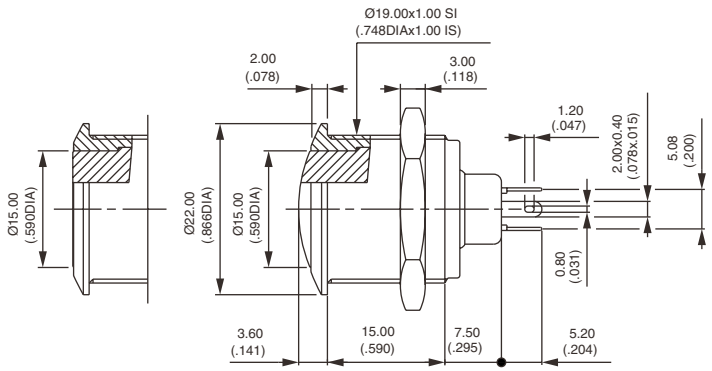
AV SERIES
SECURITY PUSHBUTTON SWITCHES
Bushing Ø 19 (.748) or Ø 22 (.866) - other electrical functions

Bushing Ø 19 (748) - combined NC/NO - AV..9035

Hex nut 22 (.866) across flats

- **Single pole, solder lug terminals**
- Gold plated silver contacts
- Current/voltage rating with resistive load :
  - max. : 1A 30V - min : 10µA 5V
  Note : a current above 100mA damages the gold plating.
- Dielectric strength : 1.000 Vrms between terminals
  2.000 Vrms between terminals and frame
- Electrical life : 250.000 cycles at full load
- Mechanical life : 1.000.000 cycles
- Further specifications : see previous page.

Flat actuator	Curved actuator	
AV099035D200	**AV199035D200**	

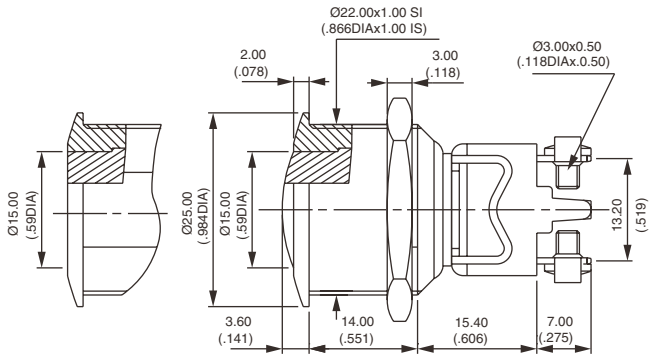


Bushing Ø 22 (.866) - Normally closed (NC) - AV..1200

Hex nut 25 (.984) across flats

- **Single pole, screw terminals, without marking**
- Silver plated copper contacts (C)
- Max. current/voltage rating with resistive load :
  2A 250VAC - 3A 125VAC - 2,5A 24VDC
- Dielectric strength :
  2.000 Vrms 50 Hz min. betw. terminals and frame
  2.000 Vrms. 50 Hz min. between terminals
- Electrical life : 100.000 cycles at 0,3A 24VAC or DC
  10.000 cycles at full load
- Further specifications : see previous page.

Flat actuator	Curved actuator	
AV031202C00	**AV021202C00**	

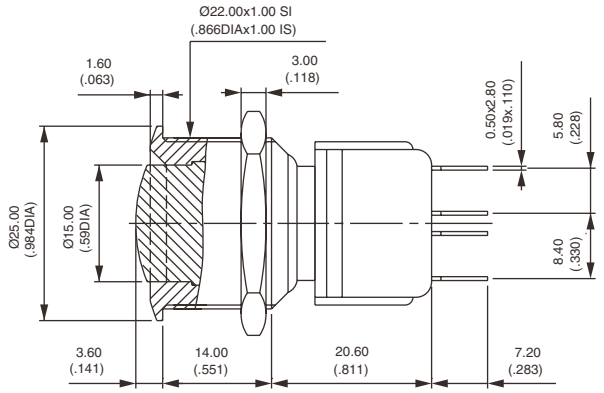


Bushing Ø 22 (.866) - alternate action - AV..4700

Hex nut 25 (.984) across flats

- **Double pole, solder lug/quick-connect term., curved actuator**
- Silver contacts
- Max. current/voltage rating with resistive load :
  3(1,5)A 250VAC - 6A 125VAC - 3A 24VAC or DC
- Dielectric strength : 3.000 Vrms min. between terminals and frame
- Electrical life : 10.000 cycles at full load
  50.000 cycles at 1A 24VAC or DC
- Mechanical life : 100.000 cycles
- Further specifications : see previous page.

AV044746A200  ON - ON



Bushing/actuator materials, marking and sealing : see "options" on next page.

K

AV SERIES
SECURITY PUSHBUTTON SWITCHES
Options

OPTIONS

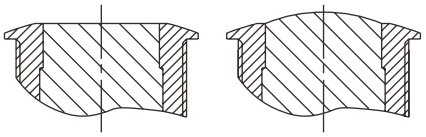
After selecting basic model number, fill in last 3 boxes with desired options.

Series	Bush./act. config.	Case style	Function	Contact matl.	Term. type	Bush./act. material	Marking	Sealing
AV								

BUSHING/ACTUATOR MATERIAL

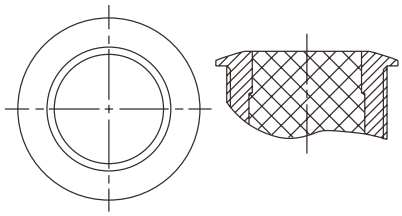
For non-standard material, replace **00** with one of the following codes.

Models with flat or curved metal actuator



CODE	BUSHING	ACTUATOR
00 (standard)	**Nickel plated brass**	**Nickel plated brass**
10	Nickel plated brass	Stainless steel
12	Nickel plated brass	Chrome plated brass
20	Chrome plated brass	Chrome plated brass
30	Chrome plated brass	Stainless steel
80	Varnished polished brass	Varnished polished brass

Models with flat thermoplastic actuator



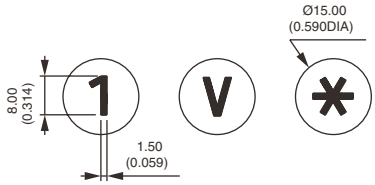
CODE	BUSHING	ACTUATOR COLOUR
0• (standard)	**Nickel plated brass**	Replace • with colour code opposite.
2•	Chrome plated brass	
8•	Varnished polished brass	

Colours
1 : blue
2 : black
3 : green
4 : grey
5 : yellow
6 : red
7/1: white
9 : orange

MARKING

Select an option from each of the two tables below.

For **flat or curved actuator.**
Not available on model AV031202C00.
- by engraving on brass actuator (stainless steel on request)
- by hot stamping on thermoplastic actuator.



TYPE OF MARKING

CODE	TYPE
0 to 9	Numbers 0 to 9
X	Symbol *
Y	Symbol #
A to N	Letters A to N
P to W	Letters P to W
0	Letter O

Letter O : same code and same design as number 0.

For special symbols, consult factory.
Minimum order : 500 pieces

COLOUR OF MARKING

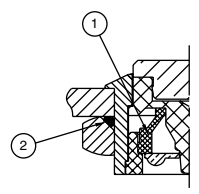
CODE	COLOUR
Brass actuator	
0 (standard)	Same as finish
2	Black

Note : a finished product supplied in version "0" cannot be modified to version "2".

Thermoplastic actuator	
2	Black
7	White

SEALING

Blank No sealing

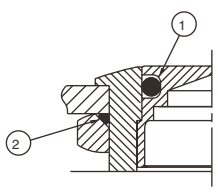


K Frontal panel sealing (IP65)

For types with bushing Ø 16

① elastomer membrane
② external gasket

① internal gasket
② external gasket



K Front panel sealing (IP65)

For types with bushing Ø 19 or Ø 22

K