



Cam switches

CQ Series

BREMAS

Overview

The range of cam switches **CQ series** includes ratings from 12 to 32A with insulation voltage of 690V. According to the latest industrial application standards, CQ series offers IP 20 terminals protection degree and up to IP66 handle protection degree. Available with different mounting systems: rear panel with screws, base mounting with screws or snap mounting on DIN rail (EN 50022) with escutcheon plate for 45mm standard knock-out. Available diagrams for every application: ON-OFF switches, line switches, cam switches for motor control, ammeter and voltmeter switches.

Easy made wiring

■ Rear access to terminals screws for rear mounting versions

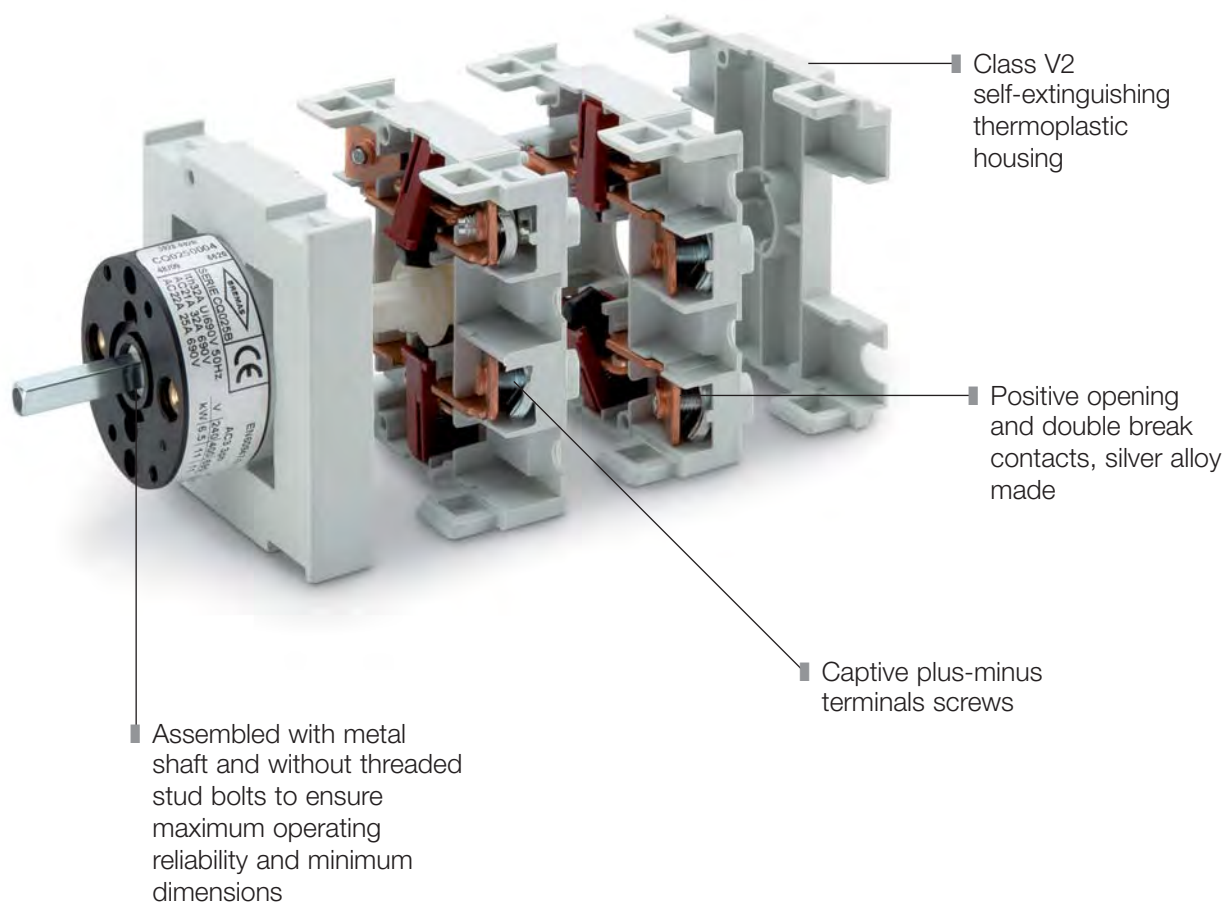


■ Front access to terminals screws for base mounting versions



■ Escutcheon plate for 45mm (1.77") standard knock-out

45mm (1.77") plate for fixing in standard panel/distribution boards slots. Available diagrams for ON-OFF switches, line switches, ammeter and voltmeter switches



■ Base mounting

All base mounting items (BL6 - BK6 handles) include a 175 mm (6.89") shaft



**Technical data
IEC 947-3
EN 60947-3**

Rated insulation voltage

Rated operating voltage

Rated impulse withstand voltage

Rated thermal current for open switch

Rated thermal current for enclosed switch

Rated operation frequency

Power dissipation for each pole

Rated operating current I_e

AC-21A Switching resistive loads, including moderate overloads

AC-22A Switching of mixed resistive and inductive loads, including moderate overloads

AC-20A Connecting and disconnecting under no load conditions

Rated operating power

AC-23A Switching of motor loads or other highly inductive loads 3 phase - 3 pole

AC-3 Squirrel cage motors: starting, switching off motors during running 3 phase - 3 pole

AC-4 Squirrel cage motors: starting, plugging, inching

AC-15 Control of a.c. electromagnetic loads ≥ 72 VA

Rated breaking capability in category in AC-23A ($\cos \varphi = 0,45$)

Short circuit protection

Rated short time withstand current (1s)

Rated short-circuit make capacity

Rated conditional short-circuit current

With fuses class gG

Technical data UL/CSA

Rated insulation voltage

Rated operating voltage

General Use Current

Rated operating power

1 phase - 2 pole

3 phase - 3 pole

Mechanical characteristics

Mechanical life

Connections according to IEC 9471-1 and EN 60947-1

Connecting capability Connecting capability with flexible wires

Connecting capability with solid wires

Connection terminal screw dimensions

Screw tightening torque

Protection degree IEC 529 EN 60529

Terminals

Ambient conditions

Operating ambient temperature

Storage ambient temperature

Withstand to constant humid according to IEC 60068

Withstand to cyclic humid according to IEC 60068

		CQ012	CQ016	CQ025	CQ032
Ui	V	690	690	690	690
Ue	V	690	690	690	690
Uimp	kV	6	6	4	4
Ith	A	16	20	32	40
Ithe	A	16	20	25	32
	Hz	50	50	50	50
	W	0,4	0,6	0,85	1,3
Ie	A	16	20	32	40
Ie	A	12	16	25	32
-	-	-	-	-	-
230V	Kw (A)	4 (13)	5,5 (17)	9 (28)	11 (35)
400V	Kw (A)	7,5 (14)	9 (16)	15 (27)	18,5 (33)
500V	Kw (A)	7,5 (11)	9 (13)	15 (22)	18 (27)
690V	Kw (A)	7,5 (8)	9 (9)	15 (16)	18,5 (19)
230V	Kw (A)	2,8 (9)	4 (13)	6,5 (20)	8,5 (26)
400V	Kw (A)	5,5 (10)	7,5 (14)	11 (21)	15 (27)
500V	Kw (A)	5,5 (8)	7,5 (11)	11 (16)	14 (20)
690V	Kw (A)	5,5 (6)	7,5 (8)	11(12)	14 (15)
230V	Kw (A)	1,1 (3)	1,5 (4)	3,7 (12)	4 (12)
400V	Kw (A)	1,75 (3)	2,2 (4)	4 (7)	5,5 (10)
230V	A	5	6	8	10
400V	A	3	4	6	8
230V	A	112	128	240	280
400V	A	112	128	216	264
Icw	A	200	240	500	640
Icm	A	1000	1000	2000	2000
-	kA	5	5	10	10
500V	A	20	20	50	50
Ui	UL/CSA V	600	600	-	-
Ue	UL/CSA V	600	600	-	-
Ie	UL/CSA A	16	20	-	-
120V	UL/CSA Hp	0,5/0,5	1,5 /0,5	-	-
240V	UL/CSA Hp	1,5/1,5	3/1,5	-	-
200V	UL/CSA Hp	2/2	5/3	-	-
240V	UL/CSA Hp	3/3	7,5/5	-	-
480V	UL/CSA Hp	5/5	7,5/7,5	-	-
600V	UL/CSA Hp	7,5/7,5	10/10	-	-
-	cycles x 10 ⁶	2	2	2	1,5
-	cycles/hour	120	120	120	120
Min-Max	mm ²	2x1,5-2,5	2x1,5-2,5	2x2,5-6	2x2,5-6
Min-Max	AWG	16-12	16-12	14-10	14-10
Min-Max	mm ²	2x1,5-4	2x1,5-4	2x2,5-10	2x2,5-10
-	Type	M3,5	M3,5	M5	M5
-	Nm	1,0	1,0	2,8	2,8
IP		20			
°C		-25 ÷ +55			
°C		-30 ÷ +70			
		2-78			
		2-30			

**Standard
plates and
knobs**



Rear mounting
with screws



Base mounting
with screws or snap
on DIN rail



Q01

Rear mounting with screws, grey plate
48x48mm (1.89x1.89"), black knob, IP65



Q06

Rear mounting with screws, grey plate
64x64mm (2.52x2.52"), black knob, IP65



RL6

Rear mounting with screws, yellow plate
67x67mm(2.64x2.64"), red padlockable
knob (max 3 padlocks), IP66



BL6

Base mounting with screws or with
snap mount on DIN rail, yellow plate
67x67mm(2.64x2.64"), red padlockable
knob (max 3 padlocks), door interlock in
"ON" position, IP66



DDN

Base mounting with screws or snap
mount on DIN rail, escutcheon plate
for standard 45mm (1.77") knock-out,
black knob, IP40

Optional plates and knobs



Rear mounting
with screws



Base mounting
with screws or snap
mount on DIN rail



QG1

Rear mounting with screws, yellow plate
48x48mm (1.89x1.89"), red knob, IP65



QG6

Rear mounting with screws, yellow plate
64x64mm (2.52x2.52"), red knob, IP65



RK6

Rear mounting with screws, grey plate
67x67mm(2.64x2.64"), black padlockable
knob (max 3 padlocks), IP66



BK6

Base mounting with screws or with
snap on DIN rail, grey plate 67x67mm
(2.64x2.64"), black padlockable knob
(max 3 padlocks), door interlock in
"ON" position, IP66

Rear mounting



Q01



Q06

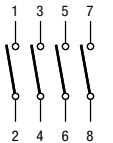
ON-OFF switch 2 pole

 0002	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
		12A	CQ0120002Q01	1		
		16A	CQ0160002Q01	1	CQ0160002Q06	R
		25A			CQ0250002Q06	R
		32A				

ON-OFF switch 3 pole

 0003	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
		12A	CQ0120003Q01	1	CQ0120003Q06	R
		16A	CQ0160003Q01	1	CQ0160003Q06	R
		25A			CQ0250003Q06	R
		32A			CQ0320003Q06	R

ON-OFF switch 4 pole

 0004	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
		12A	CQ0120004Q01	1	CQ0120004Q06	R
		16A	CQ0160004Q01	1	CQ0160004Q06	R
		25A			CQ0250004Q06	R
		32A			CQ0320004Q06	R

Change-over switch 1 pole

 0005	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
		12A	CQ0120005Q01	1	CQ0120005Q06	R
		16A				
		25A				
		32A				

 standard article

R = on Request

Rear mounting

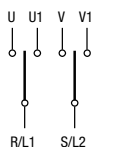


Q01

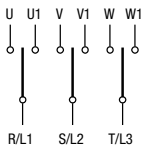


Q06

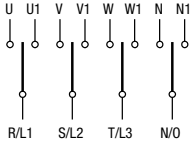
■ Change-over switch 2 pole

 0006	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
		12A	CQ0120006Q01	1		
		16A	CQ0160006Q01	1	CQ0160006Q06	R
		25A			CQ0250006Q06	R
		32A			CQ0320006Q06	R

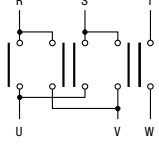
■ Change-over switch 3 pole

 0007	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
		12A	CQ0120007Q01	1	CQ0120007Q06	R
		16A	CQ0160007Q01	1	CQ0160007Q06	R
		25A			CQ0250007Q06	R
		32A			CQ0320007Q06	R

■ Change-over switch 4 pole

 0039	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
		12A	CQ0120039Q01	1		
		16A	CQ0160039Q01	1	CQ0160039Q06	R
		25A			CQ0250039Q06	R
		32A			CQ0320039Q06	R

■ Reversing switch 3 pole

 0008	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
		12A	CQ0120008Q01	1	CQ0120008Q06	R
		16A	CQ0160008Q01	1	CQ0160008Q06	R
		25A			CQ0250008Q06	R
		32A			CQ0320008Q06	R

 standard article

R = on Request

Rear mounting

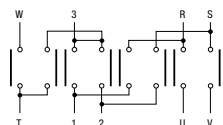


Q01

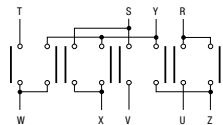


Q06

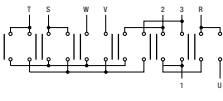
Changing switch Dahlander pole

 0009	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
		12A	CQ0120009Q01	1	CQ0120009Q06	R
		16A	CQ0160009Q01	1	CQ0160009Q06	R
		25A			CQ0250009Q06	R
		32A			CQ0320009Q06	R

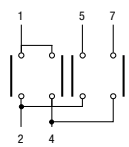
STAR-DELTA Starter

 0010	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
		12A				
		16A	CQ0160010Q01	1	CQ0160010Q06	R
		25A			CQ0250010Q06	R
		32A			CQ0320010Q06	R

Reversing switch pole changing

 0011	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
		12A				
		16A	CQ0160011Q01	1		
		25A				
		32A				

Voltmeter switch 3 concatenated voltages

 0016	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
		12A	CQ0120016Q01	1	CQ0120016Q06	R
		16A				
		25A				
		32A				

 standard article

R = on Request

Rear mounting

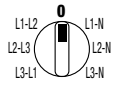
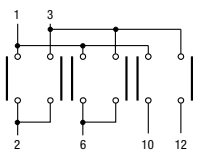


Q01

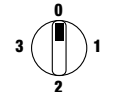
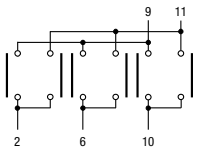


Q06

■ Voltmeter switch 3 concatenated voltages and 3 phase voltages

 0018	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
		12A	CQ0120018Q01	1	CQ0120018Q06	R
		16A				
		25A				
		32A				

■ Ammeter switch 1 pole 3 current transformers

 0022	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
		12A	CQ0120022Q01	1	CQ0120022Q06	R
		16A				
		25A				
		32A				

Rear mounting



RL6

Base mounting*

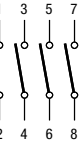


BL6

■ ON-OFF switch 3 pole with padlockable handle

 0003	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
		12A	CQ0120003RL6	1	CQ0120003BL6	1
		16A	CQ0160003RL6	1	CQ0160003BL6	1
		25A	CQ0250003RL6	R	CQ0250003BL6	R
		32A	CQ0320003RL6	R	CQ0320003BL6	R

■ ON-OFF switch 4 pole with padlockable handle

 0004	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
		12A	CQ0120004RL6	1	CQ0120004BL6	1
		16A	CQ0160004RL6	1	CQ0160004BL6	1
		25A	CQ0250004RL6	R	CQ0250004BL6	R
		32A	CQ0320004RL6	R	CQ0320004BL6	R

* Base mounting switches are supplied with standard 175mm (6.89") shaft

Rear mounting



RK6

Base mounting*

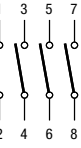


BK6

■ ON-OFF switch 3 pole with padlockable handle

 0003	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
		12A	CQ0120003RK6	R	CQ0120003BK6	R
		16A	CQ0160003RK6	R	CQ0160003BK6	R
		25A	CQ0250003RK6	R	CQ0250003BK6	R
		32A	CQ0320003RK6	R	CQ0320003BK6	R

■ ON-OFF switch 4 pole with padlockable handle

 0004	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
		12A	CQ0120004RK6	R	CQ0120004BK6	R
		16A	CQ0160004RK6	R	CQ0160004BK6	R
		25A	CQ0250004RK6	R	CQ0250004BK6	R
		32A	CQ0320004RK6	R	CQ0320004BK6	R

* Base mounting switches are supplied with standard 175mm (6.89") shaft

Plates and knobs

	Part no.	Description	Legend included		Pack
			Type	Degrees	
	FINRL6Q5	Rear mounting with screws, yellow plate 67x67mm (2.64x2.64"), red padlockable knob (max 3 padlocks), IP66	0 - 1	90°	5
	FINRK6Q5	Rear mounting with screws, grey plate 67x67mm (2.64x2.64"), black padlockable knob (max 3 padlocks), IP66	0 - 1	90°	5
	FINBL6Q5	Remounting with screws, yellow plate 67x67mm (2.64x2.64ar"), red padlockable knob (max 3 padlocks), IP66	0 - 1	90°	5
	FINBK6Q5	Rear mounting with screws, grey plate 67x67mm (2.64x2.64"), black padlockable knob (max 3 padlocks), IP66	0 - 1	90°	5
	FINQ01Q5	Rear mounting with screws, plate 48x48mm (1.89x1.89"), black knob, IP65	0 - 1 1 - 0 - 2	90° 90°	5
	FINQ06Q5	Rear mounting with screws, plate 64x64mm (2.52x2.52"), black knob, IP65	0 - 1 1 - 0 - 2	90° 90°	5

Accessories

Optional shafts

	Part no.	Description	Pack
	PALBL300	Shaft L=300mm 05	5
	PALBL500	Shaft L=500mm 05	5
	PALBL065	Shaft L=65mm 05	R
	PALBL075	Shaft L=75mm 05	R
	PALBL095	Shaft L=95mm 05	R
	PALBL115	Shaft L=115mm 05	R
	PALBL135	Shaft L=135mm 05	R
	PALBL155	Shaft L=155mm 05	R
	PALBL175	Shaft L=175mm 05	5

 standard article

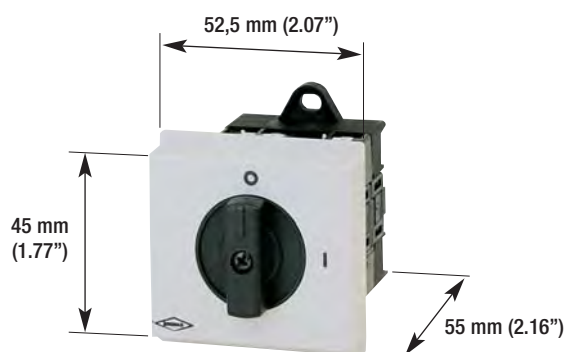
R = on Request

Construction data

DDN is the solution proposed by BREMAS for mounting the switch in panel/distribution boards standard slots, with 45mm (1.77") plate.

The main mounting system is snap mount on DIN rail, otherwise it's possible to fix the switch with screws with 48mm (1.89") or 75mm (2.95") interaxis between the holes.

Available diagrams for ON-OFF switches, line switches, ammeter and voltmeter switches. Grey escutcheon plate, black knob, IP40.



■ DDN version

	Rated nominal current			
	12A		16A	
Circuit diagram	Part no.	Pack	Part no.	Pack
DN07	CQ012DN07DDN	R	CQ016DN07DDN	R
DN08	CQ012DN08DDN	1	CQ016DN08DDN	1
DN09	CQ012DN09DDN	1	CQ016DN09DDN	1
DN10	CQ012DN10DDN	R	CQ016DN10DDN	R
DN16	CQ012DN16DDN	R		
DN18	CQ012DN18DDN	R		
DN22	CQ012DN22DDN	R		

■ standard article

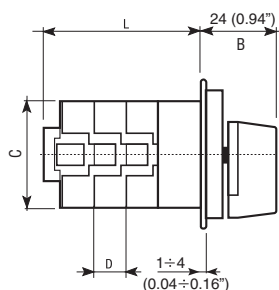
R = on Request

Switches

<

■ Rear mounting - Q01/Q06/QG1/QG6 handles

Measures in mm (in)

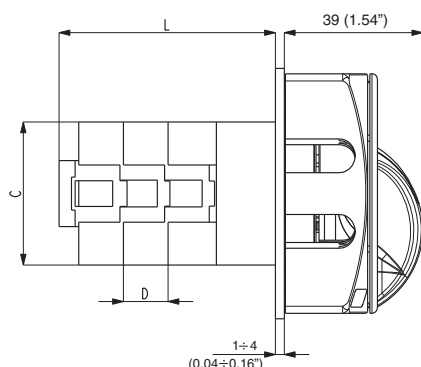


	B	
	(mm)	(in)
Q01-QG1	24	0.94
Q06-QG6	30	1.18

Stages no		1	2	3	4	6
CQ 012-016						
D = 12,5	L (mm)	48,0	60,5	73,0	85,5	110,5
0.49	L (in)	1.89	2.38	2.87	3.37	4.35
C = 40x40						
1.57x1.57						
CQ 025-032						
D = 12,5	L (mm)	50,5	63,0	75,5	88,0	113,0
0.49	L (in)	1.99	2.48	2.97	3.46	4.45
C = 63X62						
2.42x2.40						

■ Rear mounting - RL6/RK6 handles

Measures in mm (in)

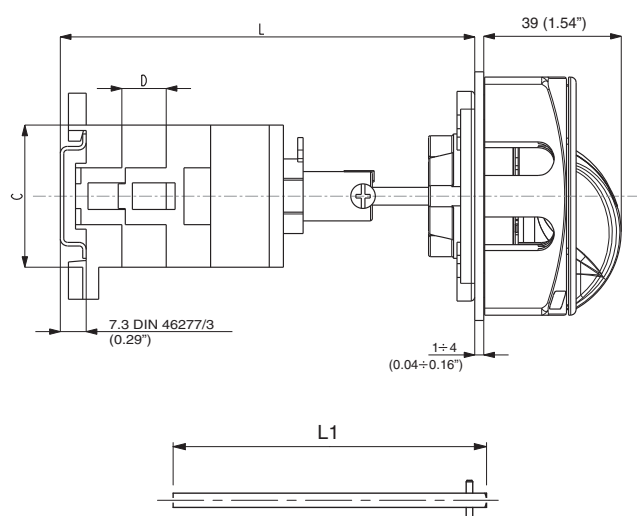


Stages no		2
CQ 012-016		
D = 12,5	L (mm)	60,5
0.49	L (in)	2.38
C = 40x40		
1.57x1.57		
CQ 025-032		
D = 12,5	L (mm)	63,0
0.49	L (in)	2.48
C = 63X62		
2.42x2.40		

■ Rear mounting - BL6/BK6 Handles

Switching angle 90°, padlockable (max 3 padlocks)

Measures in mm (in)



Overall length (min-max)** for different shaft lengths (L1):

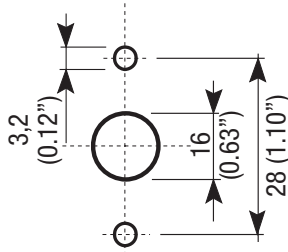
Stages no		2	Stages no		2
	L1			L1	
	175* (mm)	118 - 262		175* (mm)	121 - 265
	6.89* (in)	4.65 - 10.31		6.89* (in)	4.76 - 10.43
CQ 012-016			CQ 025-032		
D = 12,5	300 (mm)	118 - 387	D = 12,5	300 (mm)	121 - 390
0.49	11.81 (in)	4.65 - 15.24	0.49	11.81 (in)	4.76 - 15.35
C = 40x40			C = 63X62		
1.57x1.57			2.42x2.40		
	500 (mm)	118 - 587		500 (mm)	121 - 590
	19.68 (in)	4.65 - 23.11		19.68 (in)	4.76 - 23.23

* Standard shaft, bundled
** Minimum length obtainable by cutting the shaft.

Drilling templates

■ Drilling templates

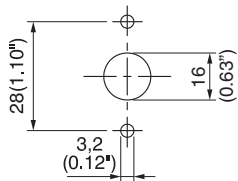
Rear mounting - Measures in mm (in)



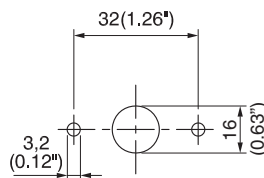
Base mounting

Escutcheon plate mounting options:

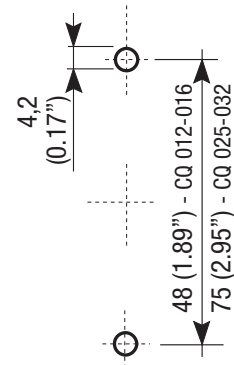
1) 2 holes with vertical distance 28mm (1.10")



2) 2 holes with horizontal distance 32mm (1.26")



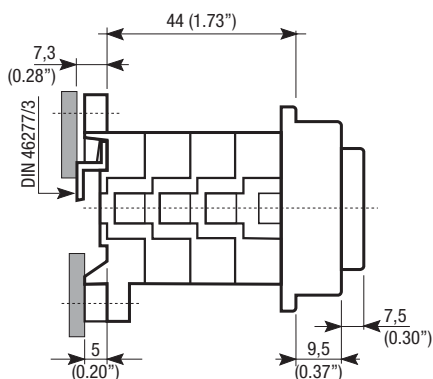
Switch



For fixing with screws in alternative to snap mount on DIN rail

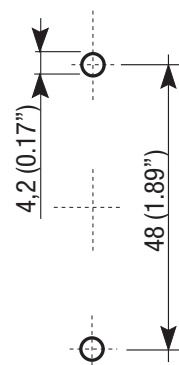
■ Base mounting - DDN

Measures in mm (in)



■ Drilling templates - DDN

Measures in mm (in)



Fixing with screws in alternative to snap mount on DIN rail



■ Customized solutions

In our archive are available **upon request** more than 10,000 diagrams to tailor every customers' needs.



■ Special versions

On request, special versions can be supplied with faston connections, customized shaft or diagrams, etc.

In over 50 years of experience, **BREMAS** has specialized in the design of products able to satisfy every customer's need through customized solutions, assuring quality and reliability.

BREMAS is the brand which better satisfies the needs of the different market segments, offering customer tailored solutions.

(see next page for some examples)

Special versions

Some examples of special versions, available on request.



Quick connection terminals (faston connections)

Flat terminal. at 90°, at 120° and other possibilities.
Suitable for series CA012, CA016, CA020, CA025, CA032



Coaxial

Obtained by coupling different series:
CA100 + CA032/CA025/CA020/CA016/CA012
CA063 + CA032/CA025/CA020/CA016/CA012
CA040 + CA020/CA016/CA012



Cable coupling

Available for rear and base mounting devices. These connections protrude from the switch and are suitable for CA012, CA016, CA020, CA032, CA040, CA063, CA100 series.



Key selector switch

Device for mounting on single hole $\varnothing$ 22 mm (0.87") with key.
Suitable for CA012, CA016, CA020, CA025 and CA032 series.