

**16 A to 4000 A AC/DC
Snap-action switches**



Creating control and signalling solutions for harsh environments.



Visit MAFELEC at our website: www.mafelec.fr



MAFELEC is a specialist in the design of control and signalling components intended to operate in the cold, heat, projections of liquids, dust, shock, vibration, ...



Exemples of applications :
External controls for a compactor.



Railway control station.

THE QUALITY APPROACH

In a context where markets are ever more competitive, MAFELEC stands out for its voluntarist quality approach, aimed at customer satisfaction.

Very active involvement at all levels in the Company has enabled MAFELEC to obtain certification to :

- ISO 9001 V2000
- OTIS Q+ (Otis lifts)
- AQAP 110 (Defence)
- RQPF (Paris Underground/Subway)

Strengthened by our success in Quality, the Company is continuing its efforts towards a certified environmental approach :

- ISO 14001

C400 Snap-action switches

Contents

General characteristics

General	1
Environmental characteristics	1
Operating power	1-2
Table of characteristics	3
- Operating principle	
- Electrical characteristics	
- Mechanical characteristics	
Structure of a standard electrical power unit	4
Standard schematics	4

Manual units (ratings: 16 A to 400 A)

Constituent parts	5
Table of adaptations	6
Control devices (ratings 16 A, 32 A, 64 A)	7-8
- Handles	
- Control shafts	
- Mounting plates	
- Labels	
Control devices (ratings 125 A, 200 A, 400 A)	9
- Handles	
- Control shafts	
- Mounting plates	
- Labels	
Dimensions	10-15

Remote-control units (ratings 64 A, 125 A, 200 A, 400 A)

Constituent parts and specifications	16-17
Dimensions	18-20

Remote-control or manual units (ratings 800 A, 1250 A, 1600 A)

Constituent parts and specifications	21
Composition of switch	22
Special units (higher ratings)	22
Dimensions	23

C400 Snap-action switches



General characteristics

These are 4-position rotary switches, fitted with a snap-action mechanism providing fast breaking and making between the contacts. Consequently, these units can be used both for direct and alternating current, even in circuits with high inductance.

Despite their compact size, numerous electrical combinations are possible, for simple applications (inverters or on-off switches) or for starting up complex motors.

The modular architecture of the basic components makes it possible to offer a wide range of variants, in the types of control and mounting. (Manual or remote control, flush-mounted or projecting or split mounting...)

Environment characteristics (all ratings)

Certifications	Compliant with standards IEC & NF EN 60 947-1 and IEC & NF EN 60 947-3 (on off switch parts)
Protective finish	Tropicalisation (operating at + 65 °C with 95% humidity)
Vibration resistance	Per section E508, French Navy : Category 5 Per IEC & NF EN 61 373
Ambient temperature (air)	Storage: - 60°C to + 70°C Operating: - 25°C to + 65°C (- 40° possible on request, except for Type K4)
Shock resistance	Per section E508, French Navy : "alpha" test machine Per IEC & NF EN 61 373
Resistance to salt spray	Per section E508, French Navy : Category 5 (250 hrs) Per IEC & NF EN 61 373
Degree of protection	IP 40 per IEC & NF EN 60 529. IP 55 for the front panel on request (special gasket). Housed in casing, on request.

Operating power (ratings from 16 to 400 A)

Operating category per IEC & NF EN 60 947-3

Rating	Alternating current				Direct current			
	Voltage	Combination of resistive and inductive loads, including moderate overloads			Voltage	Resistive loads, including moderate overloads	Highly inductive loads (motors)	Current
		AC 21	AC 22	AC 23		DC 21	DC 23	
16 A	380 V	16 A	16 A	16 A	220 V	1	2	16 A
	500 V	16 A	16 A	10 A	440 V	2	3	16 A
32 A	380 V	32 A	32 A	32 A	220 V	1	2	32 A
	500 V	32 A	32 A	25 A	440 V	2	3	32 A
	660 V	32 A	32 A	15 A				
64 A	380 V	64 A	64 A	64 A	220 V	1	2	64 A
	500 V	64 A	64 A	50 A	440 V	2	3	64 A
	660 V	64 A	64 A	30 A				
125 A	380 V	125 A	125 A	125 A	220 V	1	2	125 A
	500 V	125 A	125 A	100 A	440 V	2	3	125 A
	660 V	125 A	100 A	60 A				
200 A	380 V	200 A	200 A	200 A	220 V	1	2	200 A
	500 V	200 A	200 A	150 A	440 V	2	3	200 A
	660 V	200 A	150 A	100 A				
400 A	380 V	200 A	200 A	200 A	220 V	4	5	400 A
	500 V	200 A	200 A	150 A	440 V	5	5	400 A
	660 V	200 A	150 A	100 A	750 V	5	5	50 A

Contact us for configurations of the "motor starter" type.

C400 Snap-action switches

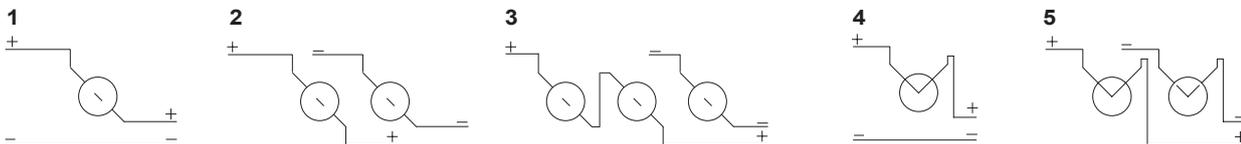


Operating power (Ratings from 800 to 1600 A)

Operating category per IEC & NF EN 60 947-3

Rating	Double-pole alternating current			Double-pole direct current			
	Voltage	AC 22	AC 23	Voltage	DC 21 (2)	DC 23 (2)	Type of connection
800 A	24 V - 60Hz (1-ph)	800 A	800 A	24 V	800 A	800 A	2
	115 V - 60Hz (1 or 3-ph)	800 A	800 A				
	440 V - 60Hz (3-ph)	800 A	800 A				
1250 A	24 V - 60Hz (1-ph)	1250 A	1250 A	24 V	1250 A	1250 A	2
	115 V - 60Hz (1 or 3-ph)	1250 A	1250 A				
	440 V - 60Hz (3-ph)	1250 A	1250 A				
1600 A	24 V - 60Hz (1-ph)	1600 A	1600 A	24 V	1600 A	1600 A	2
	115 V - 60Hz (1 or 3-ph)	1600 A	1600 A				
	440 V - 60Hz (3-ph)	1600 A	1600 A				

Connection types (direct current)



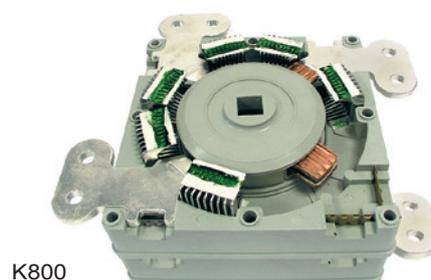
Electrical power units (Ratings 16 A, 32 A, 64 A)



Electrical power units (Ratings 125 A, 200 A, 400 A)



Electrical power units (Ratings 800 A, 1250 A, 1600 A)



C400 Snap-action switches



General characteristics

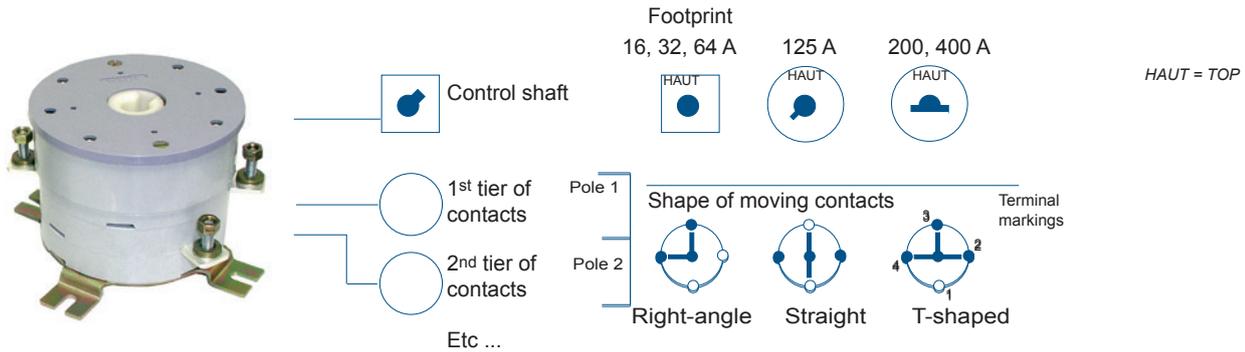
Description	Units	K16	K32	K64	K125	K200	K400	K800	K2000
Operating principle									
Friction contacts (Rotating moving contacts with two blades one close on either side of the fixed contacts)		Moving flexible contact blade	Moving flexible contact blade	Yes	Yes	Yes	Yes	Yes	Yes with "cam follower" for increased contact pressure
Operating of moving contacts		Snap-action	Snap-action	Snap-action	Snap-action	Snap-action	Snap-action	Snap-action	Snap-action
Shape of moving contacts (for selecting the schematics)		Right-angle straight T-shaped	Right-angle straight T-shaped	Right-angle straight T-shaped	Right-angle straight T-shaped	Right-angle straight T-shaped	Right-angle	Right-angle straight T-shaped	Right-angle straight
Max. number of positions per turn		4 (8 also poss.)	4	4	4	4(8 also poss.)	4(8 also poss.)	4	4
Electrical characteristics									
Rated continuous thermal current (I _{th}) at 65° ambient	A	16	32	64	125	200	400	800 (at 45°C for AC)	2000
Average heat rise in the contacts at I _{th}	°C	20	20	15	20	20	35	40 for DC 60 for AC	
Rated insulation voltage (resistance) as per IEC 60947-1 (pollution degree 3, overvoltage category III)	V	500	750	1000	1000	1000	1000	1000	1000
Dielectric strenght	KV	2.5	2.5	2.5	2.5	2.5	2.5	3.5	2.5
Insulation resistance	MΩ	> 100	> 100	> 100	> 100	> 100	> 100	> 100	> 100
Resistance between terminals	μΩ	2500	800	200	100	70	60	50	
Closing on short-circuit current	KA	0.4 (t ≤ 0.5s) 3 switchovers	0,8 (t ≤ 0.5s) 3 switchovers	5 (t ≤ 0.5s) 3 switchovers	10 (t ≤ 0.5s) 3 switchovers	20 (t ≤ 0.5s) 3 switchovers	30 (t ≤ 0.5s) 3 switchovers	50 RMS (t ≤ 0.3s)	
Resistance to short-circuit currents (contacts closed)	KA	0.8 (t ≤ 0.25s) 0.4 (t ≤ 1s)	1,2 (t ≤ 0.25s) 0,8 (t ≤ 1s)	10 (t ≤ 0.25s) 5 (t ≤ 1s)	20 (t ≤ 0.25s) 10 (t ≤ 1s)	40 (t ≤ 0.25s) 20 (t ≤ 1s)	60 (t ≤ 0.25s) 40 (t ≤ 1s)	100 RMS (t ≤ 0.25s) 50 RMS (t ≤ 1s)	
Rated making and breaking capacity in single-pole configuration (see NB)	A	16 (AC22) 500Vac 4 (110Vdc, L/R 30 ms)	32 (AC22) 500Vac 8 (110Vdc, L/R 30 ms)						
Electrical durability - number of state changes. (rated making and breaking ops. above)		80 000 80 000	60 000 60 000						
Silver-nickel stud contact for improved electrical endurance(1)				Possible	Possible	Possible	Standard	Standard	Standard
Possibility of auxiliary contacts		no	no	K16 tiers (at rear)	K16 tiers (at rear)	K16 tiers (at rear) or on countershaft	K16 tiers (at rear) or on countershaft	K32 tiers (at rear)	
Mechanical characteristics									
Nax. number of tier capable of being juxtaposed		16	16	12	15	15	12	12 4 for K400 mech.	
Mechanical life expectancy- number of state changes		80 000 (4 tiers) 40 000 (8 tiers)	60 000 (4 tiers)						
Contact changeover time	ms	2 approx. (4 tiers)	5 approx. (4 tiers)	6 approx. (1 tiers) 10 approx.(4 tiers)	10 approx. (4 tiers)	18 approx. (4 tiers)			
Connection		M4 washer head screw (2)	M5 with spring washer (2)	M6 stud and lock nut (2)	M 8 stud and nut (2)	M 8 stud and nut			6 x M 12 nuts
Possibility of thick contacts (on request)		Yes	Yes	Yes	No	Yes			no
Comments		More than 16 tiers poss. with special mechanism	For more tiers contact us	For more tiers contact us	For more tiers contact us	For more tiers contact us	For more tiers contact us	Ratings: 1250 A = 2 tiers in // 1600 A = 3 tiers in //	Special unit on request only

NB: Contact us for making and breaking capacity in other configurations (two-pole)
 (1) Selected by MAFELEC according to the conditions of use specified by the customer.
 (2) Stud with spring washer and lock nut also possible.

C400 Snap-action switches

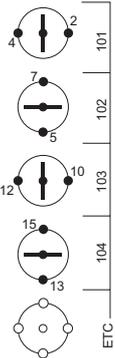
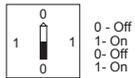


Structure of a standard electrical power unit

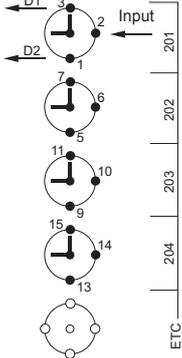
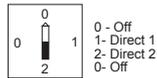


Standard schematics

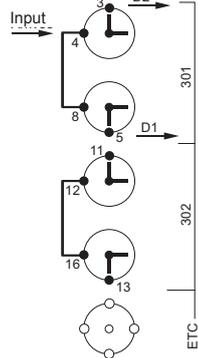
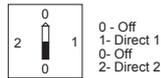
0.1.0.1 switch
Schematic No 100



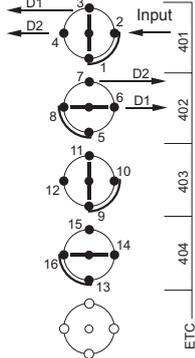
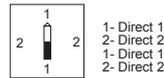
2D 0.1.2.0 switch
Schematic No 200



2D 0.1.0.2 switch
Schematic No 300

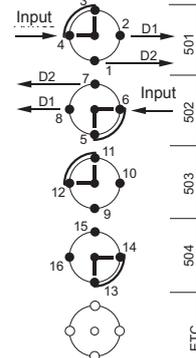
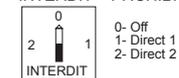


1.2.1.2 switch
Schematic No 400

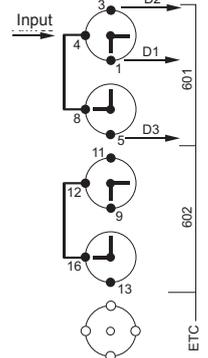
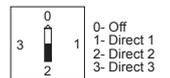


2D 0.1.2.INTERDIT *
switch
Schematic No 500

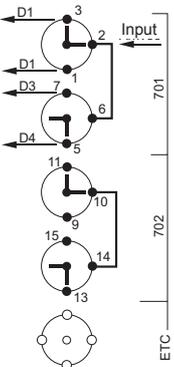
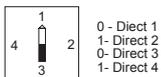
* INTERDIT = PROHIBITED



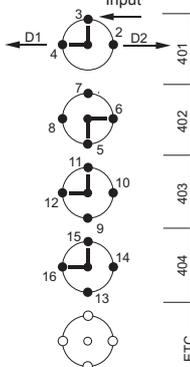
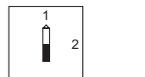
3D 0.1.2.3 switch
Schematic No 600



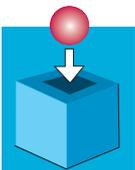
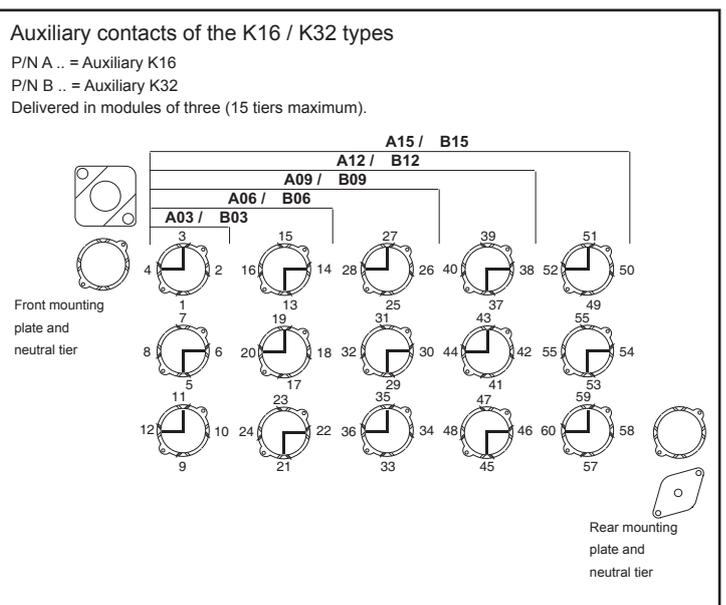
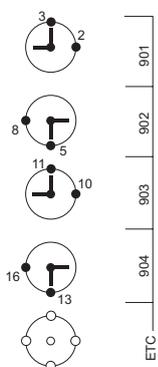
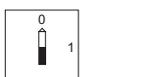
4D 1.2.3.4 switch
Schematic No 700



Schematic No 400
for K400



Schematic No 900
for K400



Contact us for other schematics and special schematics

C400 Snap-action switches

Manual units (ratings 16A, 32A, 64 A, 125 A, 200A, 400 A)



Constituent Parts

Switching block

Creating a Part Number

Some options are specifically related to a given activity segment (e.g.: silver contact studs on military switches)

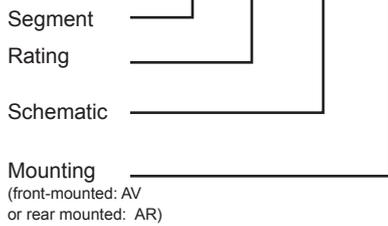
The Part Number indicates the activity.

K: Industry and Railways

MNK: Military (ratings 16 A to 32 A)

AMNK: Military (ratings 64 A and above)

E. g. : P/N **K 16 103 AV**



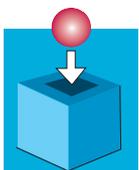
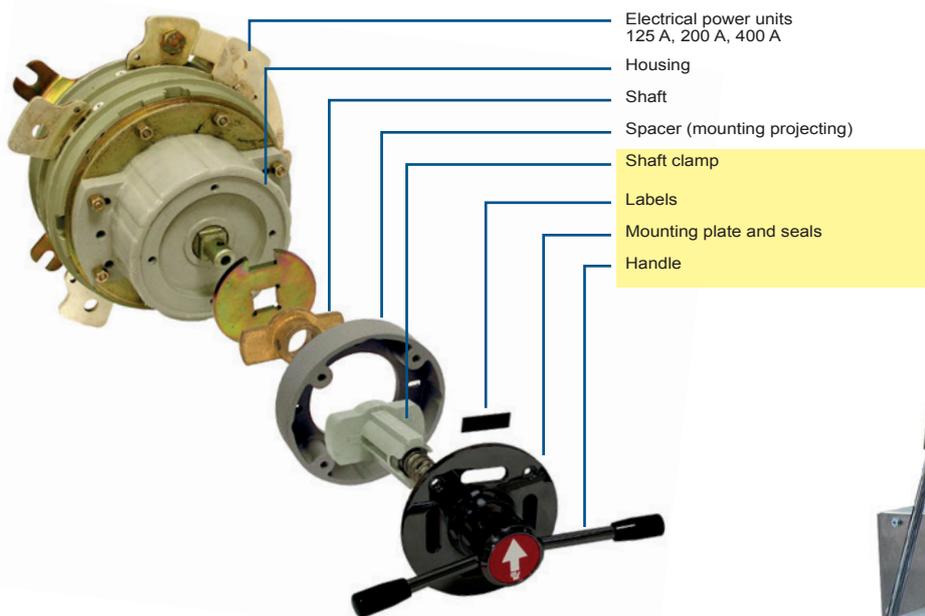
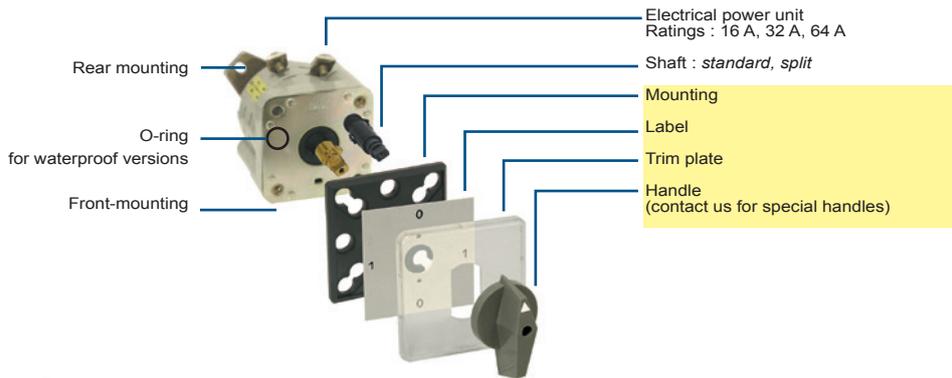
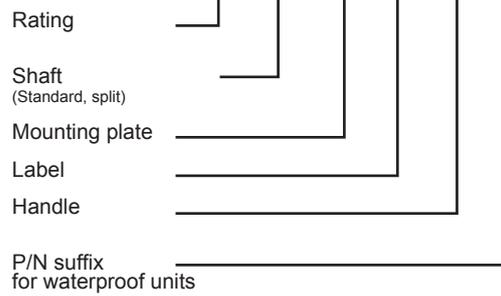
Handle block

Rating identifier:

A: 16A - **B:** 32A - **C:** 64A - **D:** 125A - **E:** 200A

F: 400A - **G:** 800A

E. g. : P/N **A CN P1 E1 M1 ET**



Special units, specific schematics, adapted handles ... contact us.

C400 Snap-action switches

Manual units (ratings 16A, 32A, 64 A, 125 A, 200A, 400 A)



Adaptation chart

	K16 (16 A)	K32 (32 A)	K64 (64 A)	K125 (125 A)	K200 (200 A)	K400 (400 A)
Mounting						
- Flush-mounted (CN)	●	●	●	●		
- Projecting (CN)	●	●	●	●	●	●
- Split mounting (CR)	●	●	●	●	●	●
Accessories						
- Mounting plates, labels with plastic or metal Trim plates	●	●	●			
- Handles: paddles, with a lever, with a lock, or a padlock.	●	●	●			
- Steel stems, ball grips, control wheel				●	●	●
Inhibited positions						
- Blocked by a stop prohibiting switching to one or more consecutive positions	●	●	●	●	●	●
Weight (kg)						
N = number of tier						
Normal mounting (CN)	0.20 + 0.03 N	0.68 + 0.1 N	1.3 + 0.33 N	3.5 + 0.67 N	5.6 + 1.25 N	7.1 + 2.39 N
Split mounting (CR)	0.20 + 0.03 N	0.68 + 0.1 N	1.3 + 0.33 N	3.5 + 0.67 N	5.3 + 1.25 N	6.8 + 2.39 N
OPTIONS						
Single rotation direction (right or left)	●	●	●	●	●	●
Automatic return (+ 22 mm dimensions)	●					
Switching action dependent on the contacts (contact us)	●					
Locking :						
- manual	●	●	●	●	●	●
- electric		●	●	●	●	●
In an enclosure :						
- plastic (3 tiers max.)	●	●				
- waterproof steel (3 tiers max.)			●			
- waterproof steel (4 tiers max.)				●	●	●
With auxiliary contacts at the rear			(1)	(1)	(2)	(1)
Various couplings		●	●			
Controlled by a motor		●	●	●	●	●

(1) See page 5 for schematics

(2) 3 or 6 active tiers for the standard version + 2 neutral plugs. See remote-controlled 200A for dimensions. See page 5 for schematics.

C400 Snap-action switches

Manual units (ratings 16A, 32A, 64 A, 125 A, 200A, 400 A)



Control devices (Ratings 16 A, 32 A, 64 A)

Handles

Description	Colour	Part Number	Weight kg	
Standard plastic paddle 45 x 22	Grey	M 1	0.005	
	Black	M 1 N		
Standard plastic paddle 60 x 30	Grey	M 2	0.010	
	Black	M 2 N		
Standard plastic paddle 85 x 40	Grey	M 3	0.030	
	Black	M 3 N		
Lever with ball grip Steel stem	Chrome with black ball	M5	0.130	
Plastic handle	Grey	M4	0.020	
	Black	M4 N		
Plastic handle locking device: standard 620 key	Grey	M6	0.150	
	Grey	M7		
Plastic handle with plunger lock with 1,2,3 padlocks	Grey	M7		

Control shafts

Description	Part Number	Weight kg	
Normal shaft for projecting or flush mounting	CN	0.020	
Split shaft Handle mounted on a moving support (door, removable front panel, ...)	CR	0.015	

Mounting plate

Description	Colour	Part Number	Weight kg	
Plastic mounting plate and transparent Trim plate for 16 A, & 32 A ratings	Grey	P1	0.035	
	Black	P1 N		
Plastic mounting plate and transparent Trim plate for 64 A rating	Grey	P3	0.055	
	Black	P3 N		
Metal Trim plate for P3 P/N only	Black	J6	0.060	

C400 Snap-action switches

Manual units (Ratings 16A, 32A, 64 A, 125 A, 200A, 400 A)

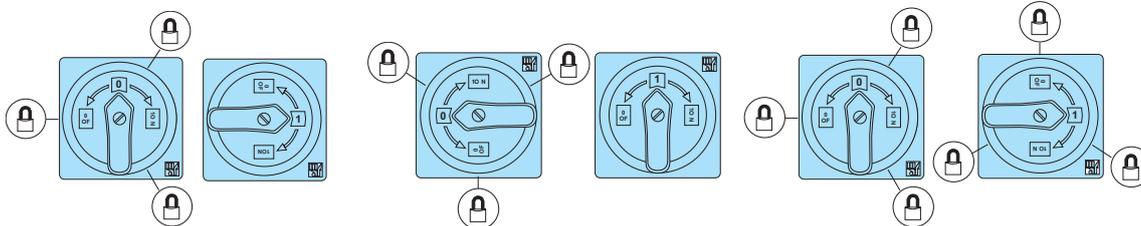
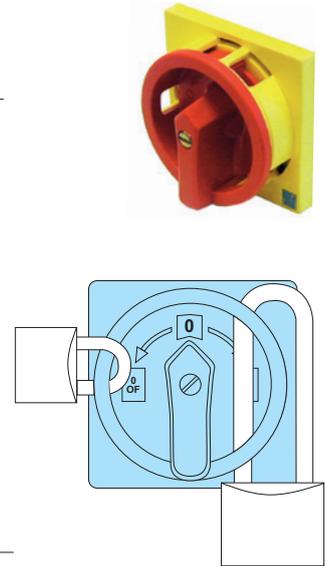


Control devices (Ratings 16 A, 32 A, 64 A)

Padlockable mounting plate and handle for K16 and K32 switches

Lockable or blocked applications switches. Not allowed for on-load switches.
 Mounting plate and paddle can be padlocked in 1 or 2 positions, in standard IP409 or waterproof (add ET to the P/N) IP699 versions. Positions visible both from the front and from the side. Plastic material.

Description	Part Number	Weight kg
1 padlockable position:		
For K16 switch		
Normal shaft	ACN PJ31 MR ACN PJ31 MR ACN PJ33 MR	0.056
Split shaft	ACR PJ31 MR ACR PJ31 MR ACR PJ33 MR	0.056
For K32 switch		
Normal shaft	BCN PJ31 MR BCN PJ31 MR BCN PJ33 MR	0.056
Split shaft	BCR PJ31 MR BCR PJ31 MR BCR PJ33 MR	0.056
2 padlockable positions:		
For K16 switch		
Normal shaft	ACN PJ61 MR	0.056
For K32 switch		
Normal shaft	BCN PJ61 MR	0.056



Aluminium Labels

Description	Colour	Part Number	Weight kg
Blank label (to be engraved) 63 x 63 (P1 mounting plate)	Grey, satin finish	E1	0.002
Blank label (to be engraved) 77 x 77 (P3 mounting plate)	Grey, satin finish	E3	0.003



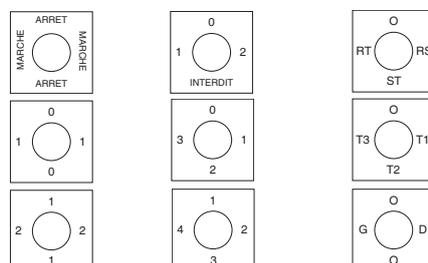
PVC Labels

Description	Colour	Part Number	Weight kg
Blank label 63 x 63	Grey	E1-1	0.001
Blank label 77 x 77	Grey	E3-1	0.002



Label with standard markings
 Use the P/N root as follows:
E1 or **E3** for the size of the label and the dash number corresponding to the required marking

Greyu background
 black text



C400 Snap-action switches

Manual units (Ratings 16A, 32A, 64 A, 125 A, 200A, 400 A)



Control devices (Ratings 125 A, 200 A, 400 A)

Handles

Description	Colour	Part Number	Weight kg
Two-armed lever with ball grips	Chrome black ball grips	M10	0.665
	Black oxide black ball grips	M10 N	
Single-armed lever with ball grip	Chrome black ball grip	M11	0.600
	Black oxide black ball grips	M11 N	
Bakelite control wheel	Black	M13	1.260



Mounting plate

Description	Colour	Part Number	Weight kg
Square mounting plate with windows, in light alloy, bright chrome or black oxide	Chrome	P10	0.225
	Black	P10 N	
Round mounting plate with windows, in light alloy, bright chrome or black oxide	Chrome	P11	0.160
	Black	P11 N	



Dilophane labels

Description	Colour	Part Number	Weight kg	
Blank label 13 x 39 mm for P10 or P11 mounting plates	Black background	E10-1	0.001	
Label with standard markings, 13 x 39 mm for P10 or P11 mounting plates	Black background white text	ON	E10-2	0.001
		OFF	E10-3	
		PROHITED	E10-4	
			E10-5	
			E10-6	
			E10-7	
			E10-8	
	E10-9			



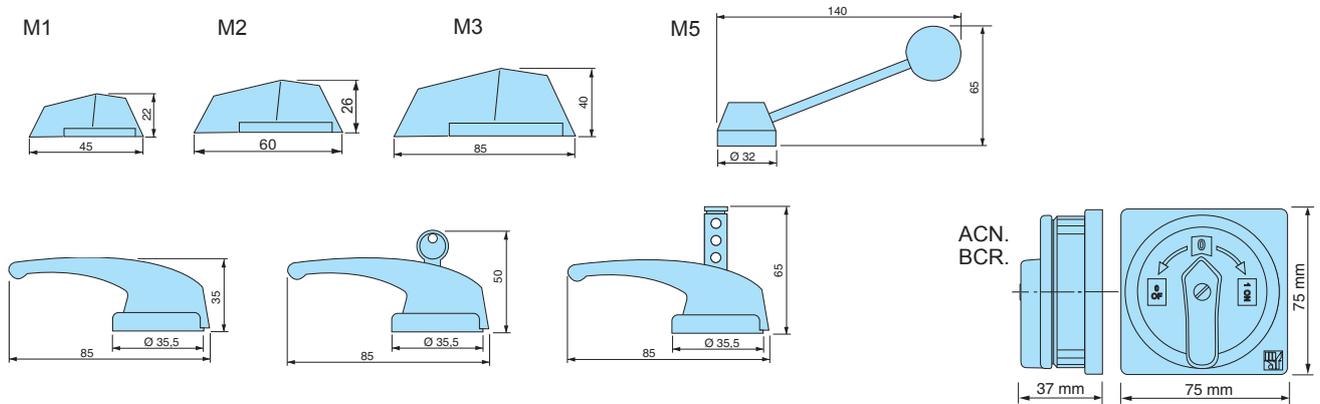
C400 Snap-action switches

Manual units (Ratings 16A, 32A, 64 A, 125 A, 200A, 400 A)

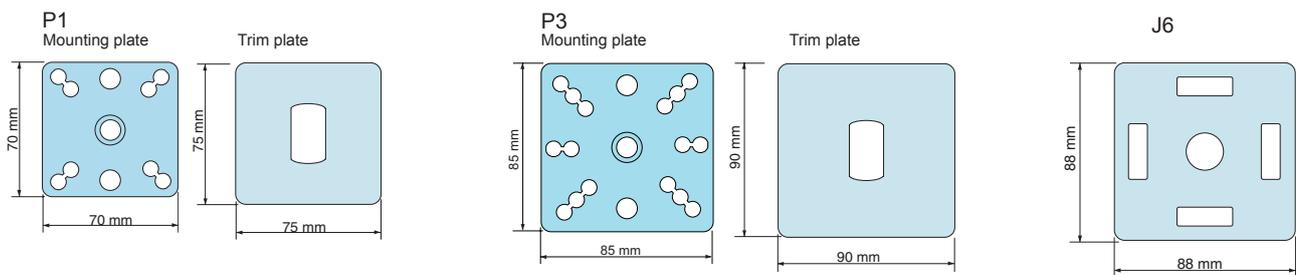


Dimensions of handles and mounting plates

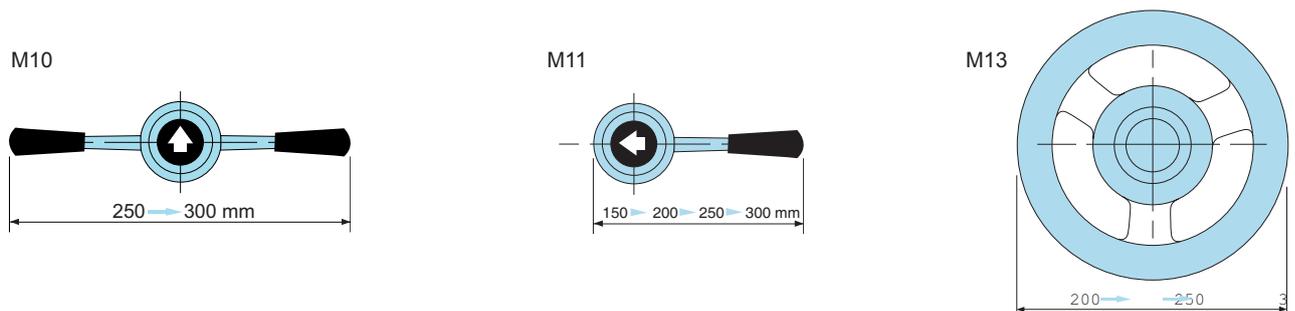
Handles for ratings: 16 A, 32 A, 64 A



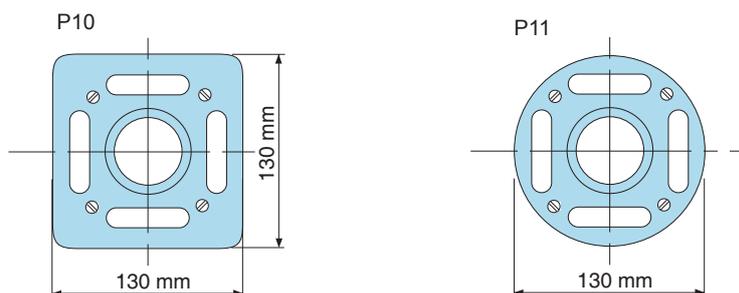
Mounting plates for ratings: 16 A, 32 A, 64 A



Handles for ratings: 125 A, 200 A, 400 A



Mounting plates for ratings: 125 A, 200 A, 400 A



C400 Snap-action switches

Manual units (Ratings 16A, 32A, 64 A, 125 A, 200A, 400 A)

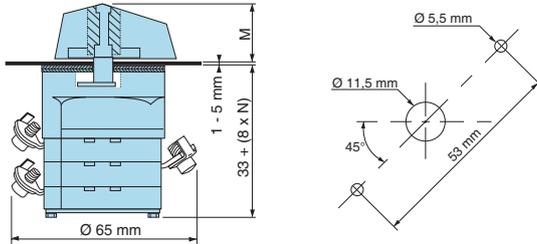


Dimensions and panel cutouts

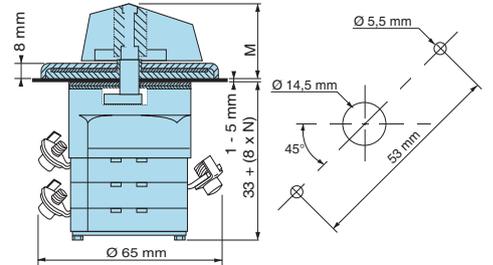
16 A Rating

Flush mounting (Unit attached via the front panel, from the front)

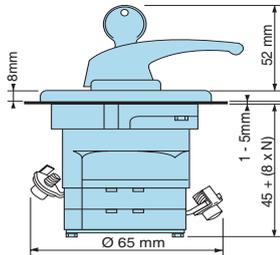
Without mounting plate



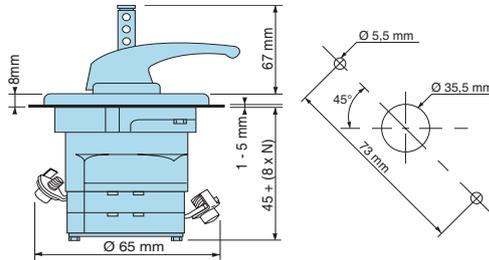
With mounting plate



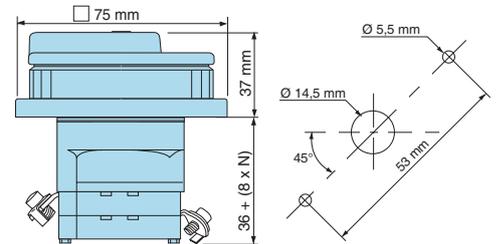
Handle with a lock



Handle with plunger lock

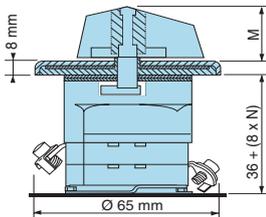


With ACR. or ACN. paddles

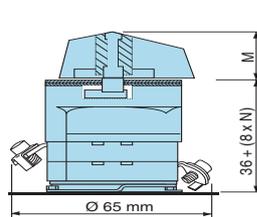


Projecting mounting (Unit attached via the rear plate)

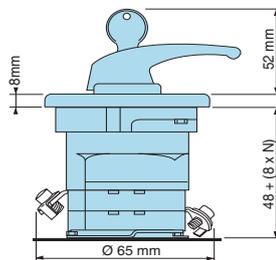
Without mounting plate



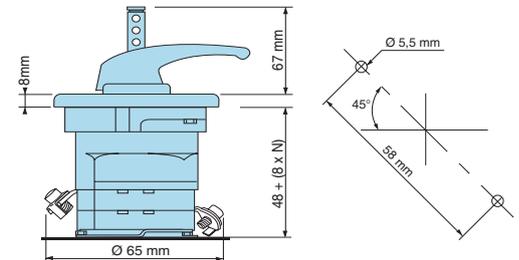
With mounting plate



Handle with a lock

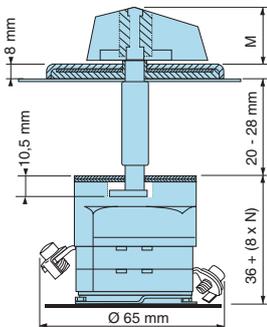


Handle with plunger lock

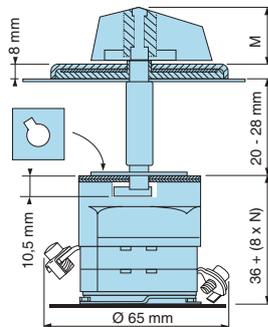


Split mounting (Unit attached via the rear plate, and mounting plate/handle on mobile front panel)

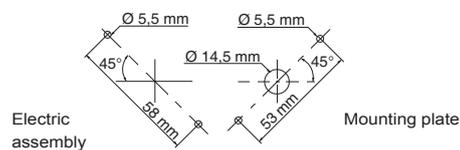
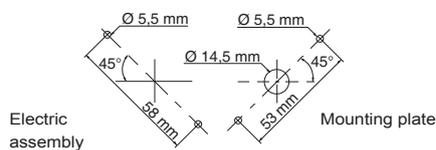
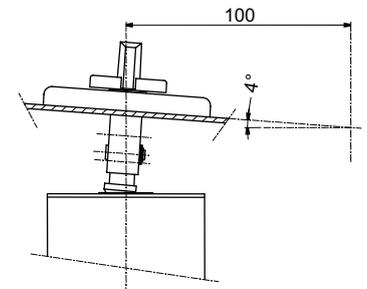
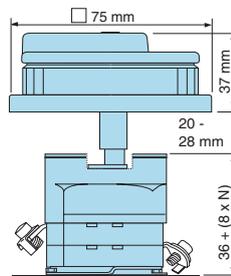
With mounting plate



With door lock



With ACR. or ACN. paddles



NB: Contact us for attachment and dimensions for split-mounted units with key or plunger locks.

C400 Snap-action switches

Manual units (Ratings 16A, 32A, 64 A, 125 A, 200A, 400 A)

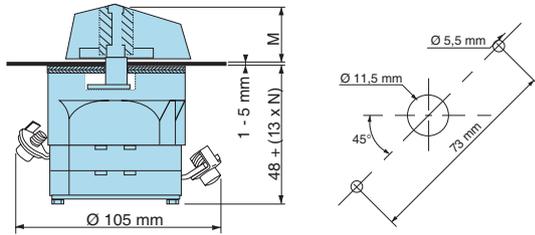


Dimensions and panel cutouts

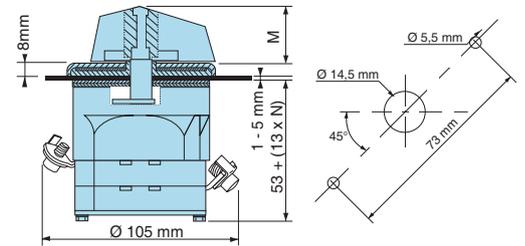
32 A Rating

Flush mounting (Unit attached via the front panel, from the front)

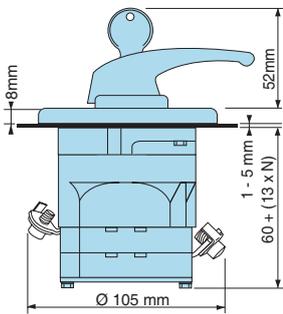
Without mounting plate



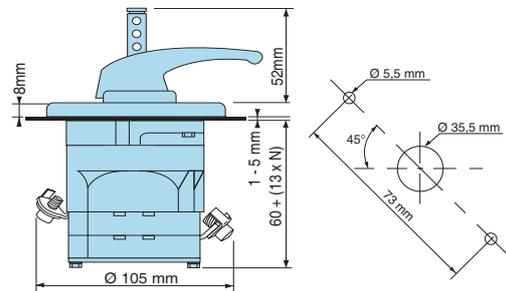
With mounting plate



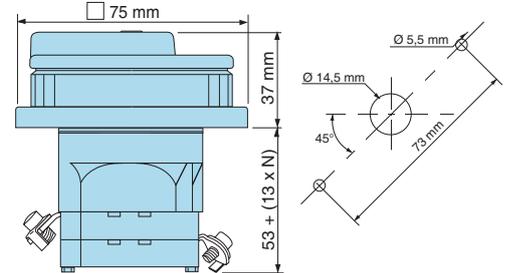
Handle with a lock



Handle with plunger lock

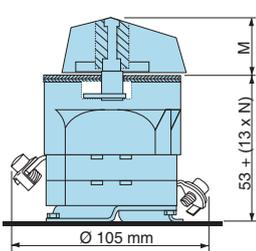


With ACR. or ACN. paddles

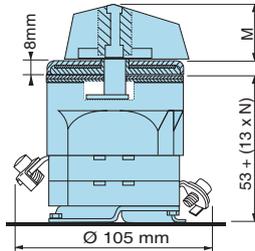


Projecting mounting (Unit attached via the rear plate)

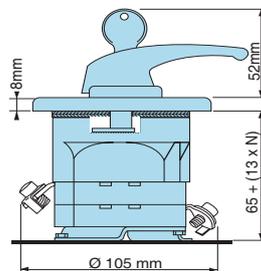
Without mounting plate



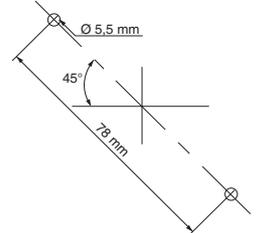
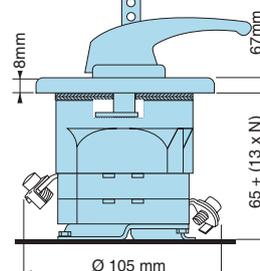
With mounting plate



Handle with a lock

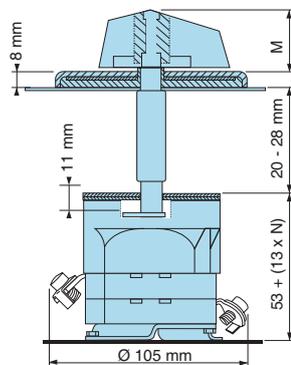


Handle with plunger lock

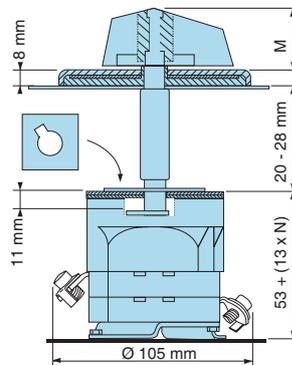


Split mounting (Unit attached via the rear plate, and mounting plate/handle on mobile front panel)

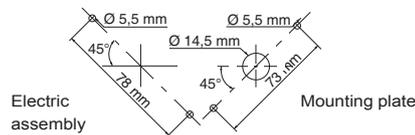
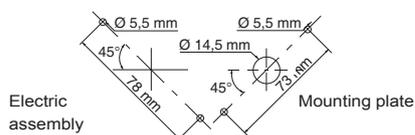
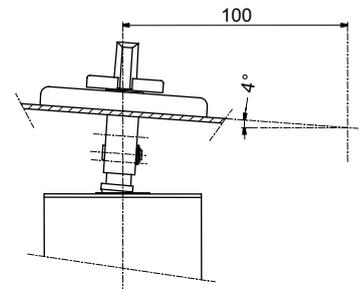
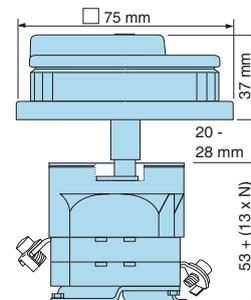
With mounting plate



With door lock



With ACR. or ACN. paddles



NB: Contact us for attachment and dimensions for split-mounted units with key or plunger locks.

C400 Snap-action switches

Manual units (Ratings 16A, 32A, 64 A, 125 A, 200A, 400 A)

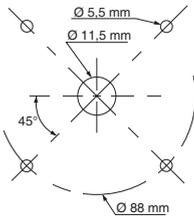
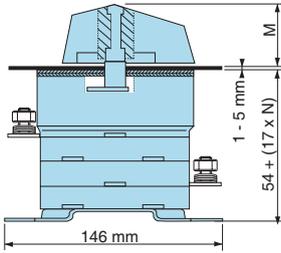


Dimensions and panel cutouts

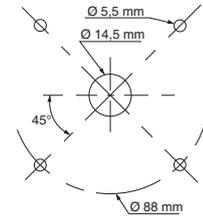
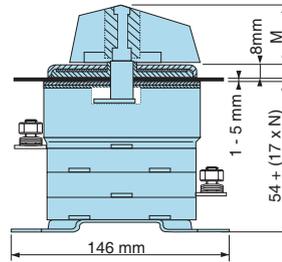
64 A Rating

Flush mounting (Unit attached via the front panel, from the front)

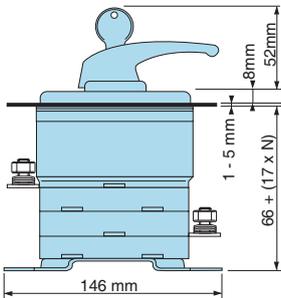
Without mounting plate



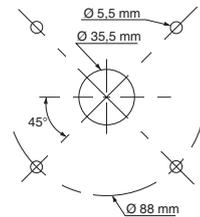
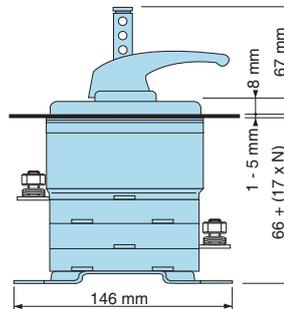
With mounting plate



Handle with a lock

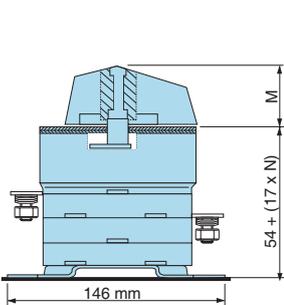


Handle with plunger lock

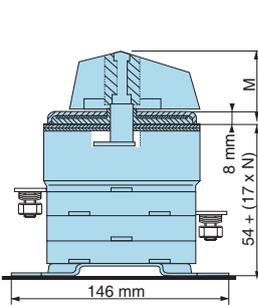


Projecting mounting (Unit attached via the rear plate)

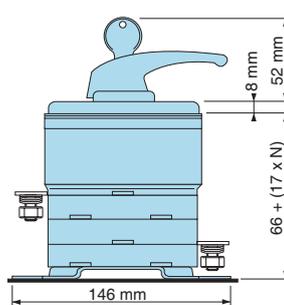
Without mounting plate



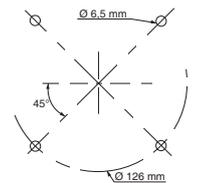
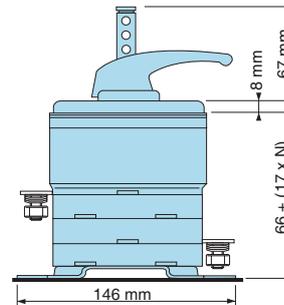
With mounting plate



Handle with a lock

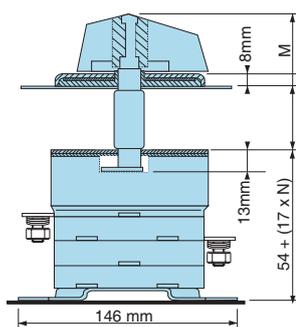


Handle with plunger lock

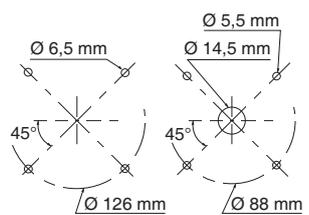
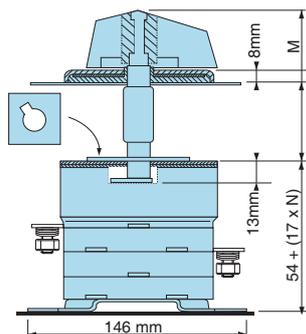


Split mounting (Unit attached via the rear plate, and mounting plate/handle on mobile front panel)

With mounting plate

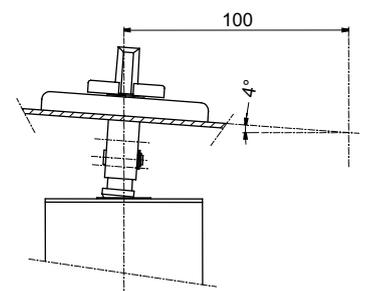


With door lock



Electric assembly

Mounting plate



NB: Contact us for attachment and dimensions for split-mounted units with key or plunger locks.

C400 Snap-action switches

Manual units (Ratings 16A, 32A, 64 A, 125 A, 200A, 400 A)

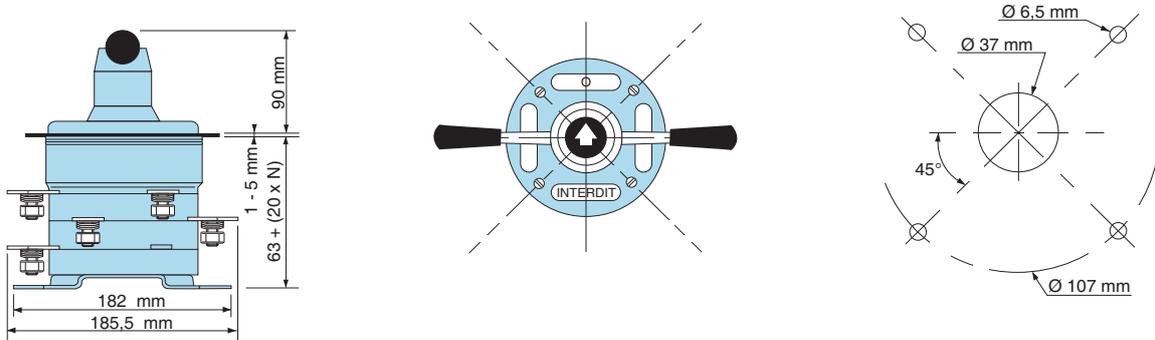


Dimensions and panel cutouts

125 A Rating

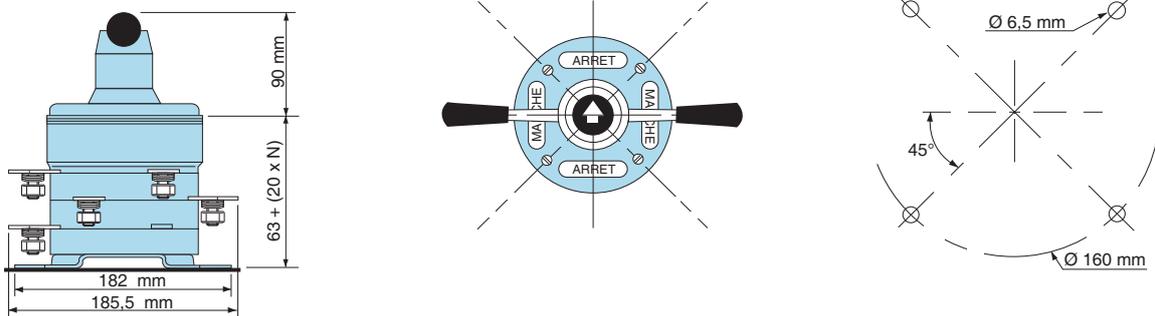
Flush mounting (Unit attached via the front panel, from the front)

With mounting plate



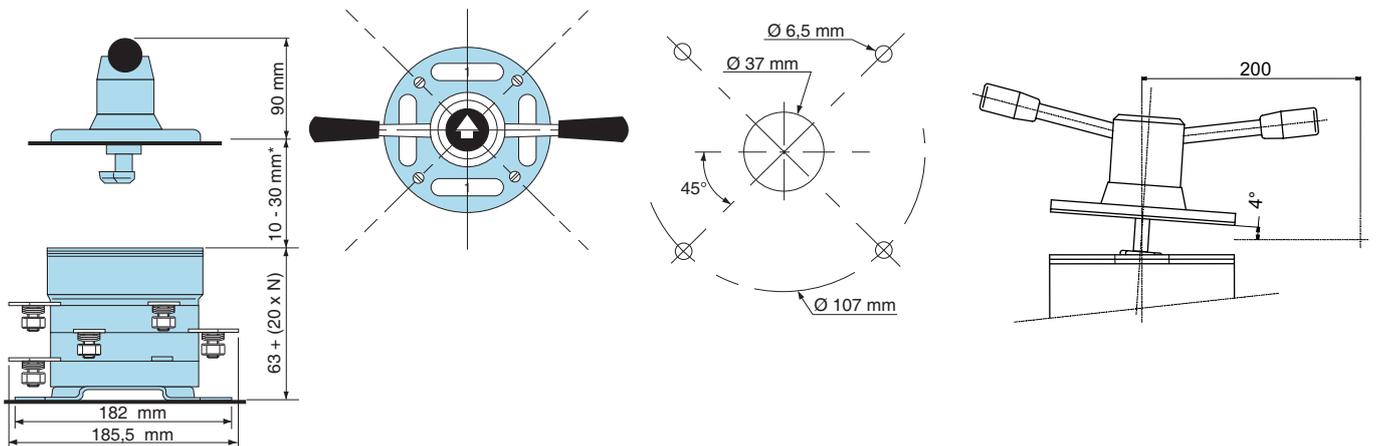
Projecting mounting (Unit attached via the rear plate)

With mounting plate



Split mounting (Unit attached via the rear plate, and mounting plate/handle on mobile front panel)

With mounting plate



C400 Snap-action switches

Manual units (Ratings 16A, 32A, 64 A, 125 A, 200A, 400 A)

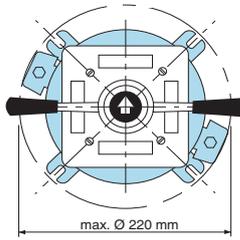
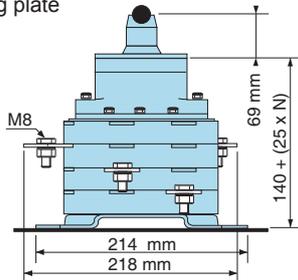


Dimensions and panel cutouts

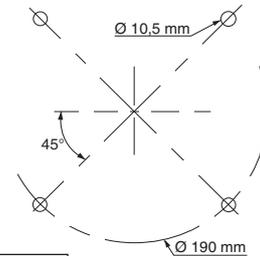
200 A Rating

Flush mounting (Unit attached via the front panel, from the front)

With mounting plate

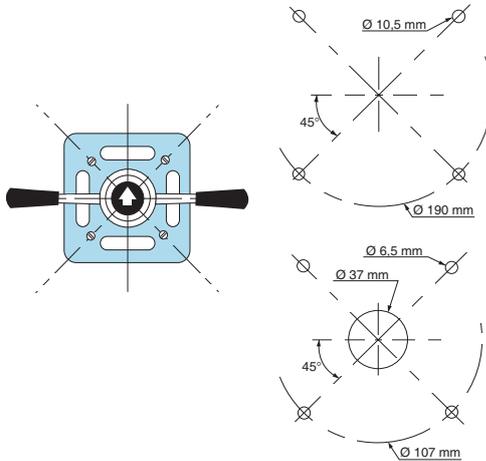
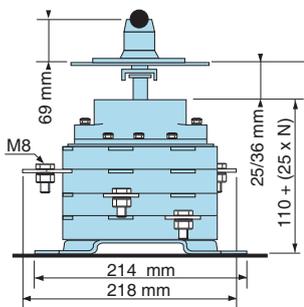


Drilling template for rear plate attachment



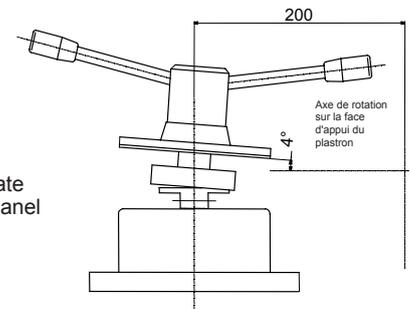
Split mounting (Unit attached via the rear plate, and mounting plate/handle on mobile front panel)

With mounting plate



Drilling template for rear plate attachment

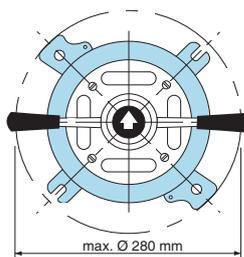
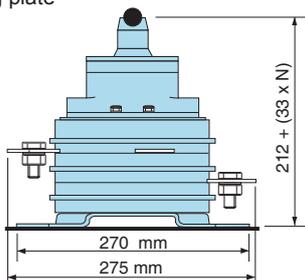
Drilling template mobile front panel



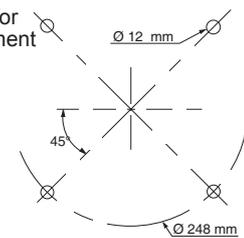
400 A Rating

Flush mounting (Unit attached via the front panel, from the front)

With mounting plate

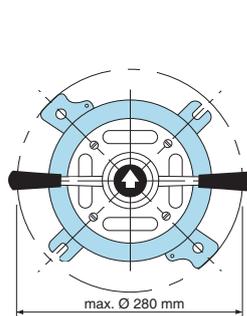
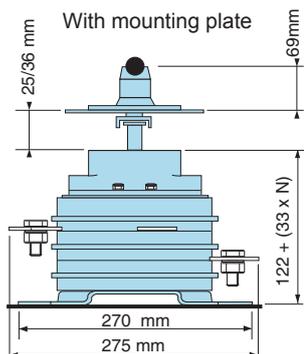


Drilling template for rear plate attachment

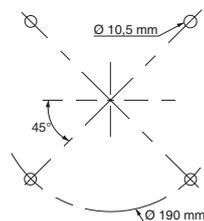


Split mounting (Unit attached via the rear plate, and mounting plate/handle on mobile front panel)

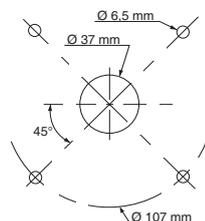
With mounting plate



Drilling template for rear plate attachment



Drilling template mobile front panel



C400 Snap-action switches

Remote-control units (calibres 64 A, 125 A, 200A, 400 A)



Constituent parts and specifications

Handle The handle is used as an emergency manual control should the motor or power supply fail. Safety: when the handle is inserted, a micro-contact isolates the motor remote control (optional for 64 A and 125 A).

Window / mounting plate Where the switch is flush-mounted, the positions on the mounting plate are visible through the window fixed on the front panel of the cabinet, and the manual control is accessed by opening the window.

Drive motor Electric drive: several kinds of motors for products K32 to K800

	Rated voltage	Frequency
AC, single-phase	115V, 230V	50/60Hz
DC	24V, 48V, 72V, 110V	Not applicable

Other possibilities: please contact us

Gearbox This consists of the following items assembled on one housing:
 - A snap-action mechanism
 - A gearbox
 Depending on the electrical schematic desired, the gearbox can be fitted with 1 or 2 mechanical stops to inhibit switching to one or several positions.
 Options:
 - A handle micro-contact (opens the circuit as soon as the handle is inserted)
 - A pre-cutoff micro-contact (activated at the start of operation both for electrical and manual control)

Electric power assembly This consists of a stack of several tiers put together and selected according to the schematics of the unit. (characteristics of a contact element)
 Depending on the required wiring, the terminals can be commoned together by tier shunts and inter-tier shunts.
 The fixed and moving contacts are fitted with Ag-Ni contact studs to improve the electric performance.

K16 Auxiliary All remote-controlled switches are fitted with a K16 auxiliary used mainly to servo-control the motor, consisting of 3, 6, 9 or 12 electric tiers.
 It may be mounted:
 - On the end of the shaft, fitted straight onto the shaft of the electric power assembly, and attached to the rear plate (all ratings)
 - On the countershaft housing, driven by a gearwheel system, controlled by the shaft of the electric power assembly, all fixed on the rear plate. In this case, the K16 auxiliary is oriented towards the front (K200 and K400 only).

Each unit has its own specific alphanumeric part number, according to the required characteristics.

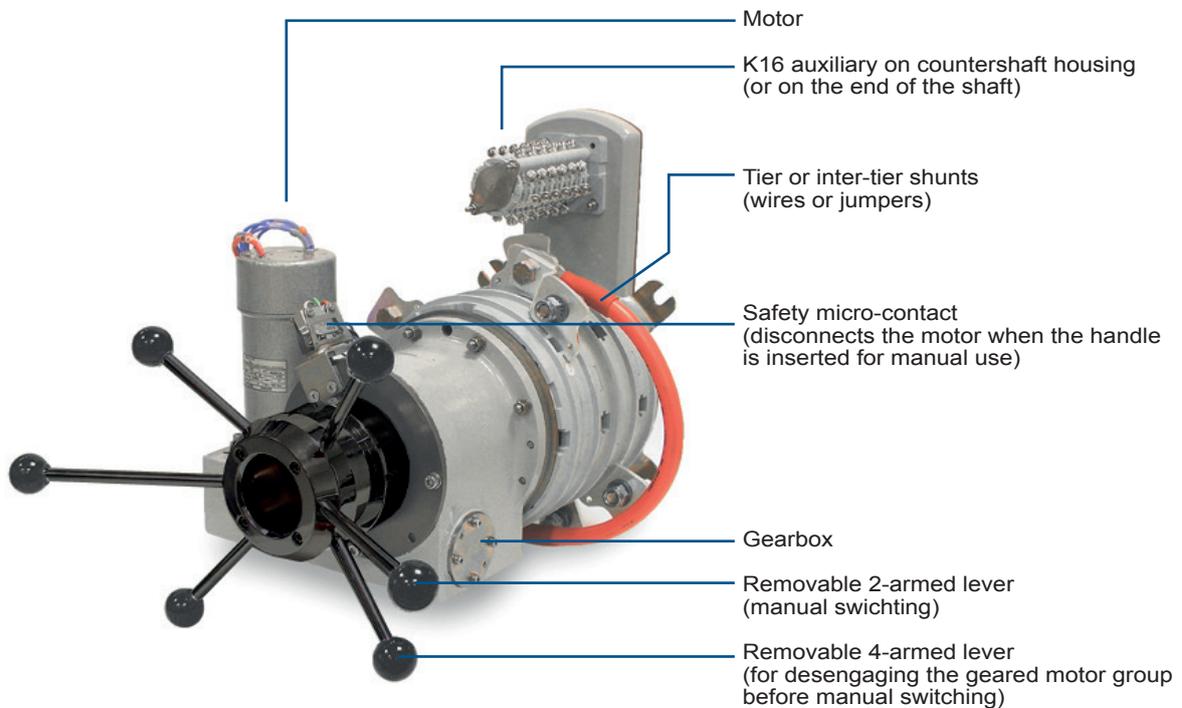
- Operating current
- Voltage
- L / R or power factor
- Number of tiers
- Power and auxiliary (optional)
- Unit function
- Micro-contacts for the handle, for the pre-cut-off
- Mounting method (projecting or cabinet)
- Various control devices (mounting plate, handle, window / mounting plate, handle window)
 - Engraving on mounting plate
- Text for the labels, designation of prohibited positions A.B.C.D
- Electrical schematic
- Power, auxiliary, remote control part.
 - Choice of motor
- Voltage and type of current, motor protection fuses.

C400 Snap-action switches

Remote-control units (Ratings 64 A, 125 A, 200A, 400 A)



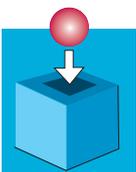
Constituent parts



motor-driven K64



motor driven K200



Contact us for special units, specific schematics, adapted levers...

C400 Snap-action switches

Remote-control units (Ratings 64 A, 125 A, 200A, 400 A)



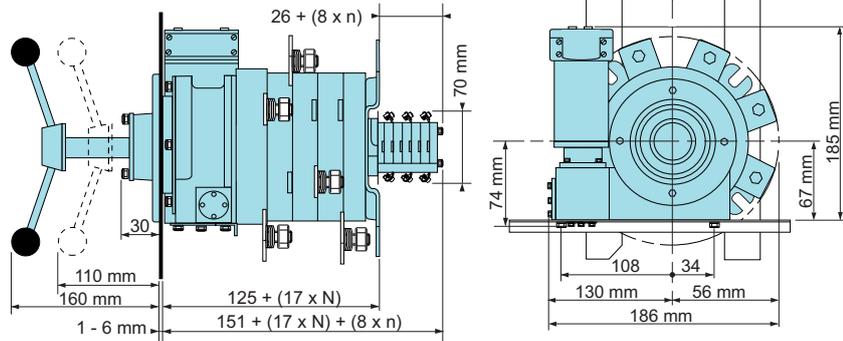
Dimensions and panel cut-outs

64 A Rating

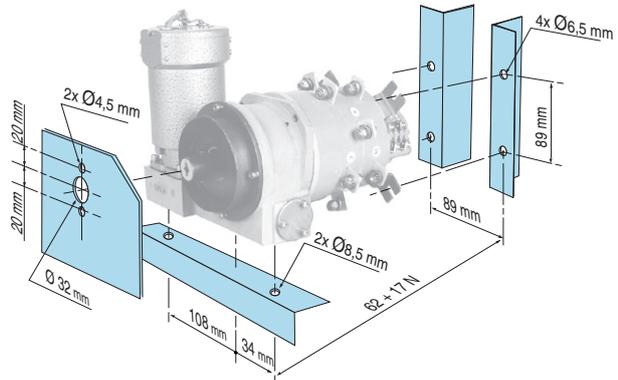
N = number of active power / auxiliary tiers
 n = number useful auxiliary tiers
 (the 26 mm dimension includes 2 neutral tiers)

With K16 auxiliary aligned with the shaft

Weight (Kg): $7.3 + 0.76 N$
 (with handle and mounting plate)



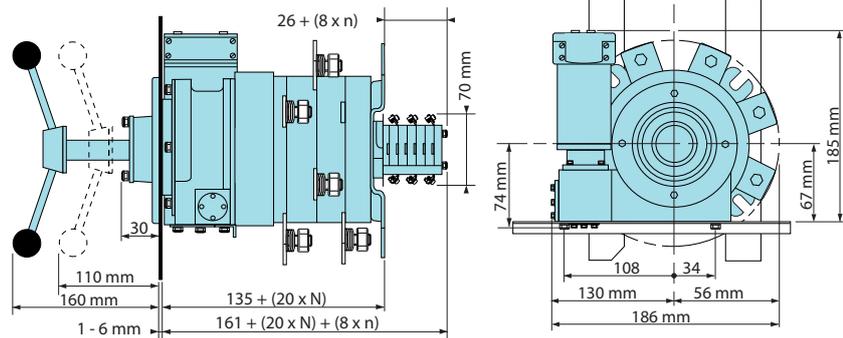
Drilling template



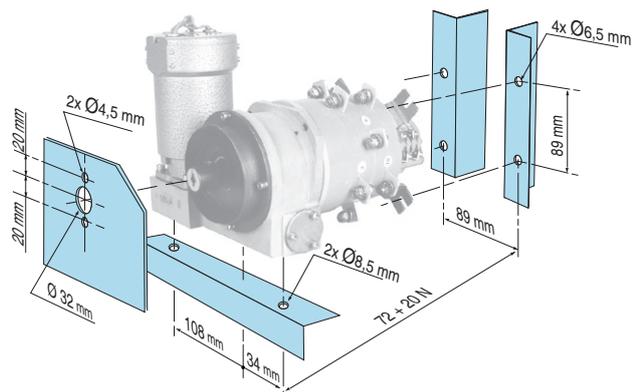
125 A Rating

With K16 auxiliary aligned with the shaft

Weight (Kg): $7.3 + 0.76 N$
 (with handle and mounting plate)



Drilling template



C400 Snap-action switches

Remote-control units (Ratings 64 A, 125 A, 200A, 400 A)



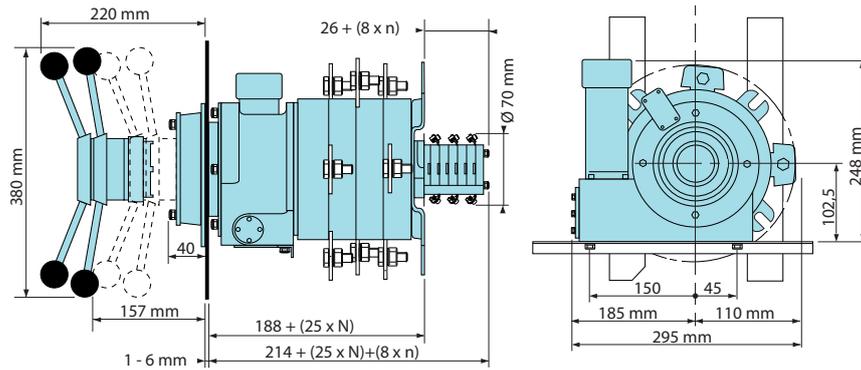
Dimensions and panel cut-outs

200 A Rating

N = number of active power / auxiliary tiers
 n = number useful auxiliary tiers
 (the 26 mm dimension includes 2 neutral tiers)

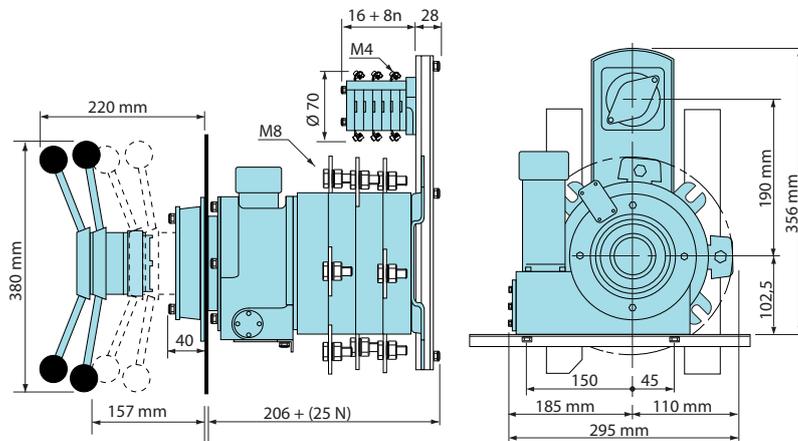
With K16 auxiliary aligned with the shaft

Weight (Kg): $20.4 + 1.25 N$ (with handle and mounting plate)

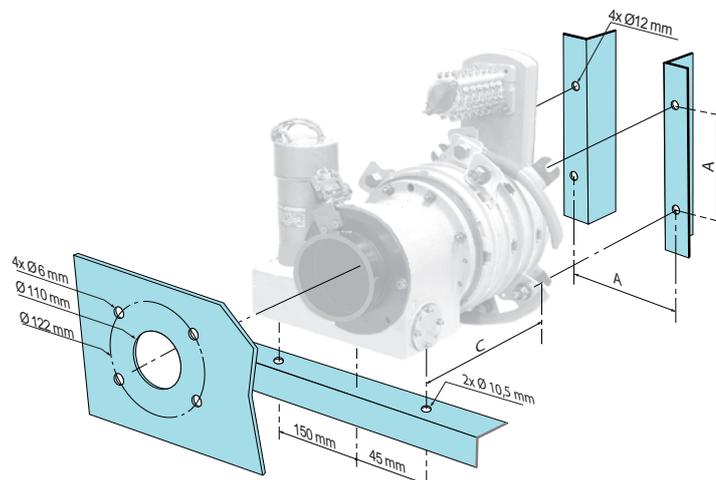


With K16 auxiliary on the countershaft housing

Weight (Kg): $22.9 + 1.25 N$ (with handle and mounting plate)



Drilling template



Auxiliary on the shaft
 A= 135 x 135
 Auxiliary on the countershaft housing
 A= 175 x 175

C400 Snap-action switches

Remote-control units (Ratings 64 A, 125 A, 200A, 400 A)



Dimensions and panel cut-outs

400A Rating

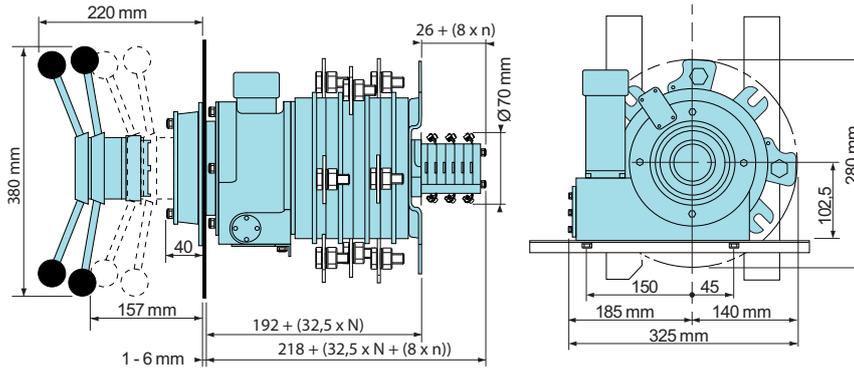
N = number of useful power tiers

n = number useful auxiliary tiers

(the 26 mm dimension includes 2 neutral tiers)

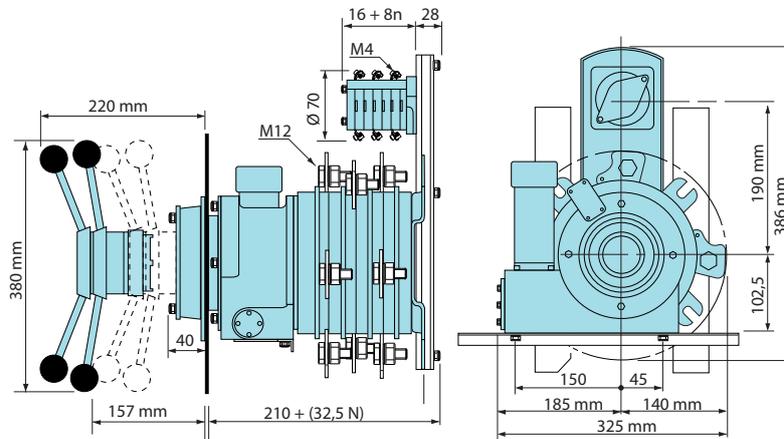
With K16 auxiliary aligned with the shaft

Weight (Kg): $20.5 + 2.39 N$ (with handle and mounting plate)

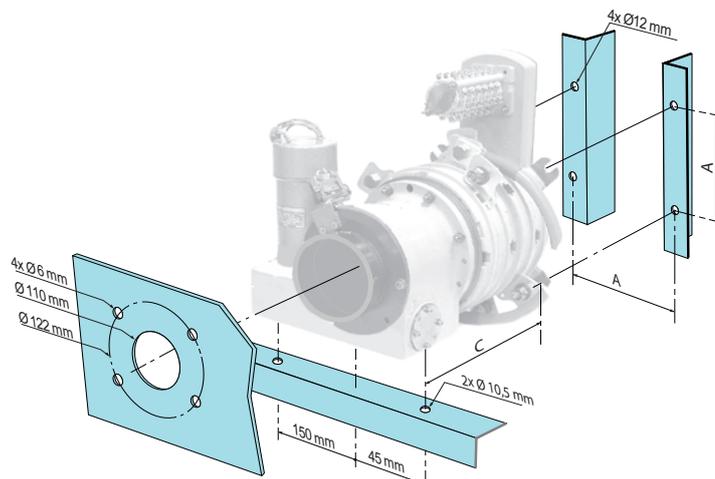


With K16 auxiliary on the countershaft housing

Weight (Kg): $22.5 + 2.39 N$ (with handle and mounting plate)



Drilling template



Auxiliary on the shaft or
on the countershaft housing
A= 175 x 175

C400 Snap-action switches

Manual and remote-control units (Ratings 800 A, 1250 A, 1600A)



Constituent parts

Crank
 The crank is used as an emergency control for motor-driven units, and as a manual control for units not driven by a motor.
 Approximately 16 complete turns are required to arm the spring to rotate the shaft.

Windows / mounting plate
 The switch index and the positions on the mounting plate are visible through the window fixed on the front panel of the cabinet.
 The manual control window allows access for the crank, once plug is removed.

Drive motor
 Several types of motor can be used:

Rating	Alternating current				Direct current	
	24V	48V	72V	110V	115V/ 60Hz triple-phase	220V/ 50Hz single-phase
800 A	●	●	●	●		●
1250 A	●	●	●	●		●
1600 A	●	●	●	●		●

Gearbox
 This consists of the following items assembled on a single housing:
 - A snap-action mechanism
 - A gearbox
 Depending on the electrical schematic desired, the gearbox can be fitted with 1 or 2 mechanical stops preventing switching to one or several positions.
 Options:
 - 1 or 2 crank micro-contacts (opens the circuit as soon as the crank is inserted)
 - From 2 to 4 position micro-contacts.
 - 1 equipped terminal block depending on the number of position and crank micro-contacts and the type of motor used

Electric power assembly
 This consists of a stack of several tiers put together and selected according to the schematics of unit (characteristics of a contact element)
 Depending on the electric schematic desired, the terminals can be commoned together by tier shunts and inter-shunts (flat, right-angled or tubular shunts of various lengths)
 The fixed and moving contacts are fitted with Ag-Ni contact studs to improve the electric performance.

Note: The 1250 A and 1600 A rating units are produced by installing two or three 800 A tiers in parallel using tubular shunts.

K32 auxiliary
 Adapting a K32 auxiliary at the rear is optional. It may have 3, 6, 9, 12 or 15 useful tiers, however, for more than 15, an adaptation on a support chassis can be prepared (contact us)

Technical file
 Each unit has its own specific alphanumeric part number, according to the various file elements.
 - Operating characteristics
 Operating current
 Voltage
 L / R or power factor
 Type of the circuit (inductive, resistive)
 Load or no-load breaking
 Overcurrent (duration, if applicable)
 Switching frequency (O.C.O)
 Number of tiers
 Power and auxiliary (optional)
 Unit function
 Mounting method (projecting or cabinet)
 Various control devices (mounting plate, crank, window / mounting plate, handle window)
 - Engraving on mounting plate
 Text for labels, designation of prohibited positions A.B.C.D
 - Electrical schematic
 Power, auxiliary, remote control part.
 - Choice of motor
 Voltage and type of current, motor protection fuses.

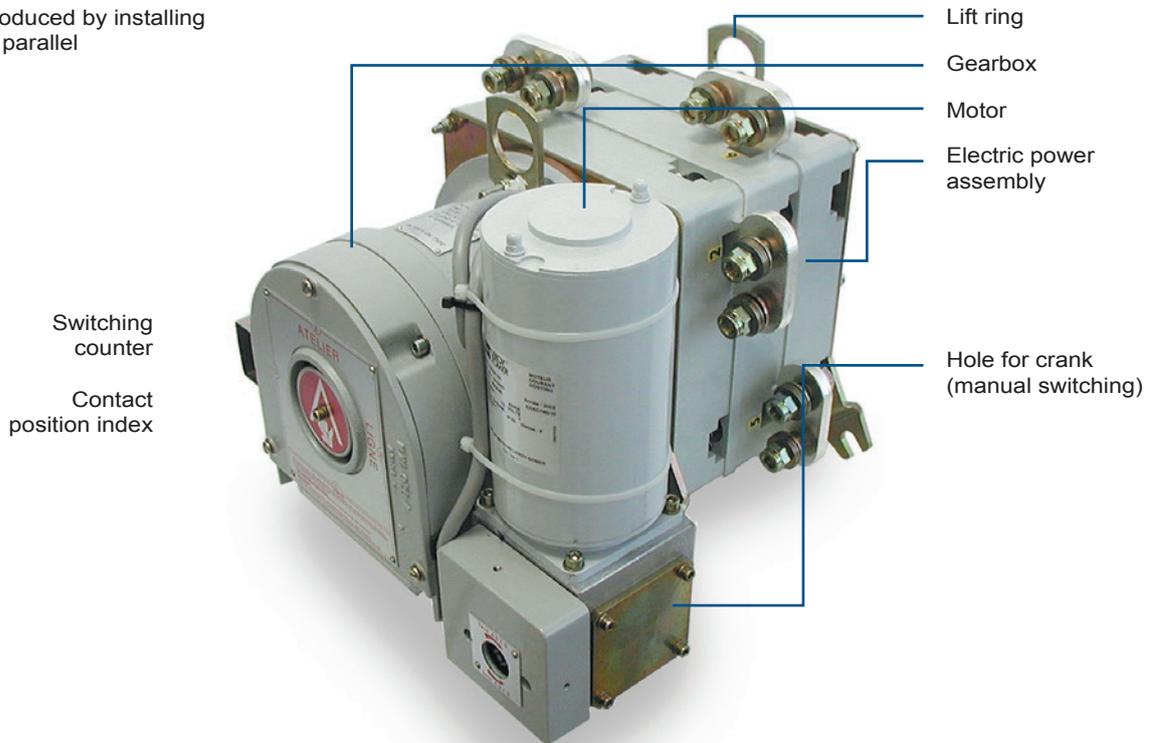
C400 Snap-action switches

Manual and remote-control units (Ratings 800 A, 1250 A, 1600A)



Constituent parts

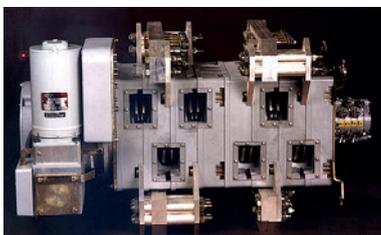
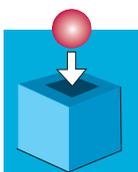
Reminder: the 1250 and 1600 ratings are produced by installing 2 or 3 tiers in parallel



Special units



K 800 for manual control, for railway application.



Contact us for special units, specific schematics, adapted handles, special mechanisms, mounting in cabinet... up to 4000 A

C400 Snap-action switches

Manual and remote-control units (Ratings 800 A, 1250 A, 1600A)



Dimensions and panel cut-outs

800A Rating

N = number of useful power tiers
 n = number of useful auxiliary tiers
 (the 26 mm dimension includes 2 neutral tiers)

Weight (Kg):
 (with window, crank, mounting plate and for most common schematics)

examples:
 double-pole units

K800 N = 2
 K1250 N = 4
 K1600 N = 6

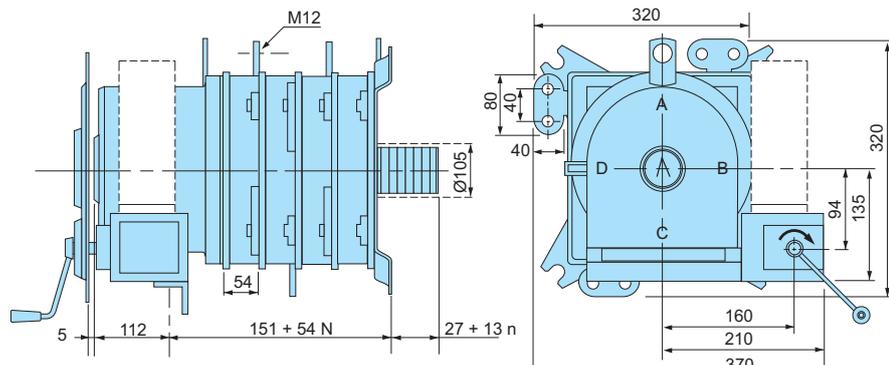
Manually controlled units with K32 auxiliary aligned with the shaft

Rating	Weight of unit without electrical tiers	Weight of the electrical tiers (per type of tier) x N			
K800	28,5	7.1 N	6.7 N	6 N	5.4 N
K1250	28,5	7.6 N	7.2 N	6.4 N	5.7 N
K1600	28,5	7.8 N	7.4 N	6.5 N	5.75 N

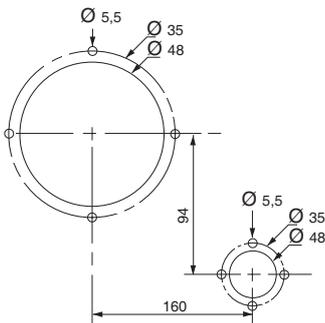
Remote-controlled units with K32 auxiliary aligned with the shaft

Rating	Weight of unit without electrical tiers	Weight of the electrical tiers (per type of tier) x N			
K800	32,5	7.1 N	6.7 N	6 N	5.4 N
K1250	32,5	7.6 N	7.2 N	6.4 N	5.7 N
K1600	32,5	7.8 N	7.4 N	6.5 N	5.75 N

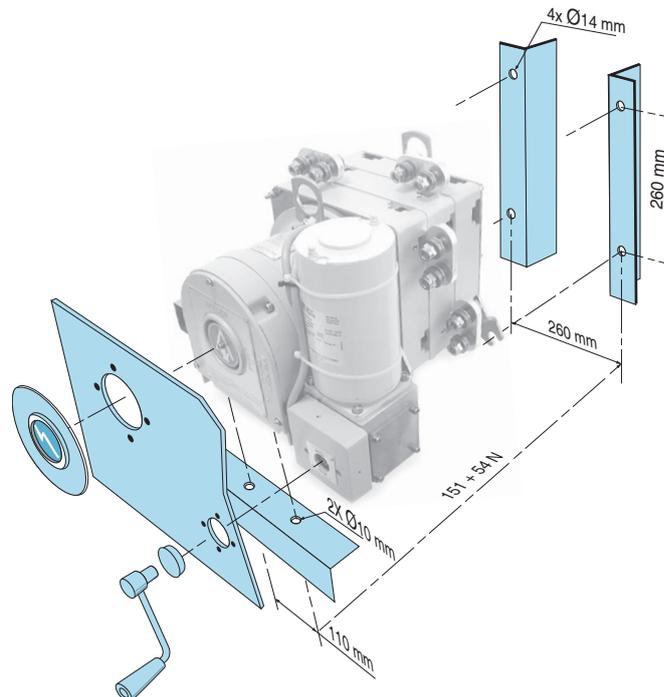
Dimensions: Manual or motor-driven units



Front panel drilling template



Drilling template for supports



Consult our other catalogues

Catalogue **A6-1**
Control components



Catalogue **B2-1**
Standard 16 A switches and Low level switches with self-cleaning contact



Catalogue **B3-2**
16A to 400A AC/DC Snap action switches



Catalogue **E1-4**
Standard and special Indicator lights



Catalogue **E7**
LED Marker / Tail lights



Catalogue **E8**
Display & Signalling



Catalogue **G1-2**
Low and medium voltage Insulators and Partitions bushings



Catalogue **F4-1** **Contact us**
BR500 junction terminals



Catalogue **F2-2**
Stud junction terminals



Catalogue **L1**
Watertight control boxes



Catalogue **D2-2**
Pendant control boxes



Catalogue **L2** **Contact us**
ORCA Range



471 Route de la Cuisinière
38 490 CHIMILIN - FRANCE
Tel. : +33 (0)4 76 32 07 33
Fax.: +33 (0)4 76 32 54 11
Email: contact@mafelec.fr
www.mafelec.com