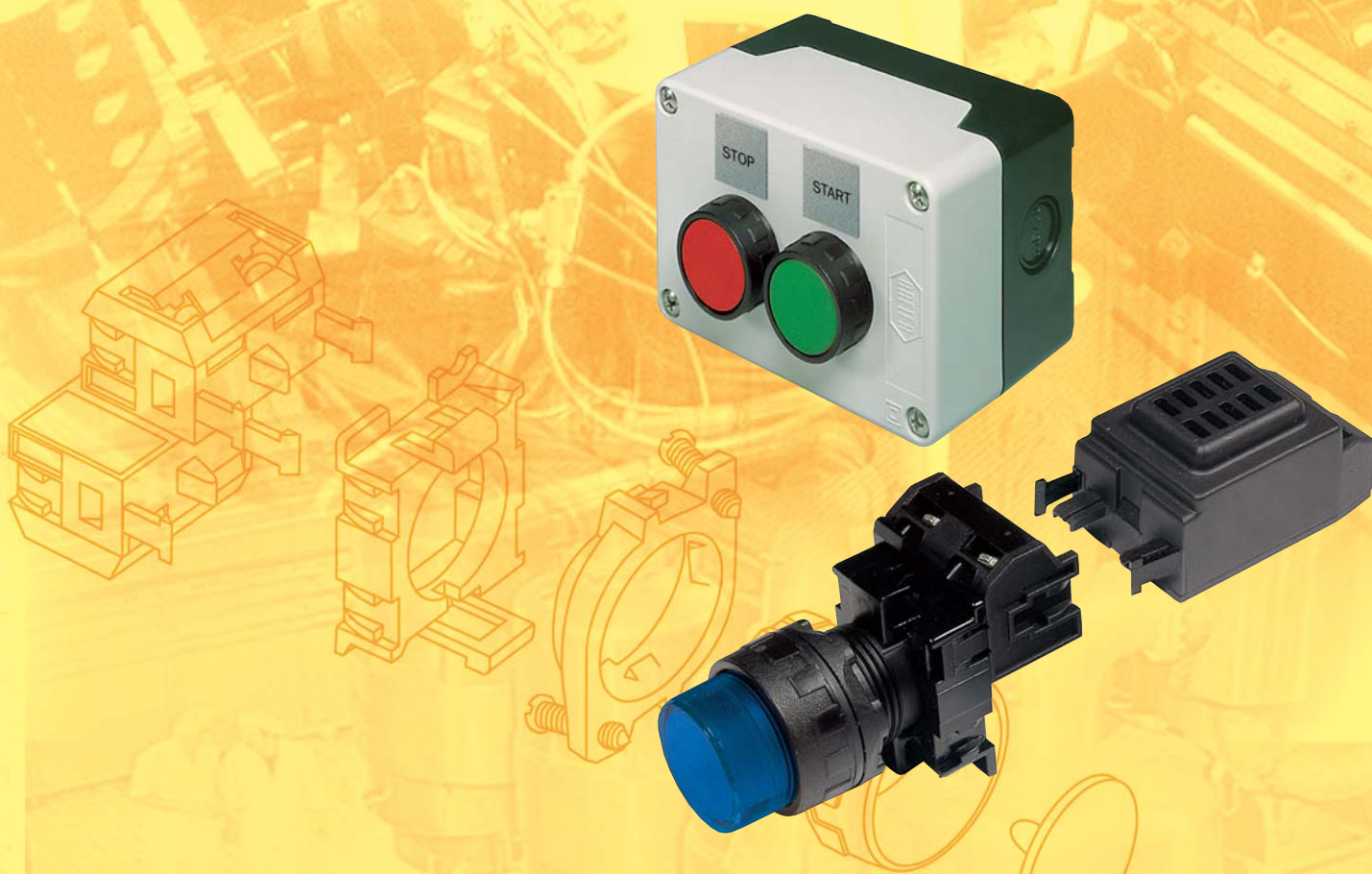




***industrial
controls***

Control switches RM Series

Control switches and indicating units 16, 22, 30mm
Control stations 22, 30mm



RM/RT Series: main features



Breter range of modular control switches and indicating units offers many application solutions on low voltage electrical circuits, both in alternating and direct current. Actuators are available for **Ø 16, 22 and 30** mm central hole fixing, bodies are **metallic** such as **thermoplastic**, round and square version. **Protection class for all operators is IP65** which means protection against penetration of solids, dust and liquids.

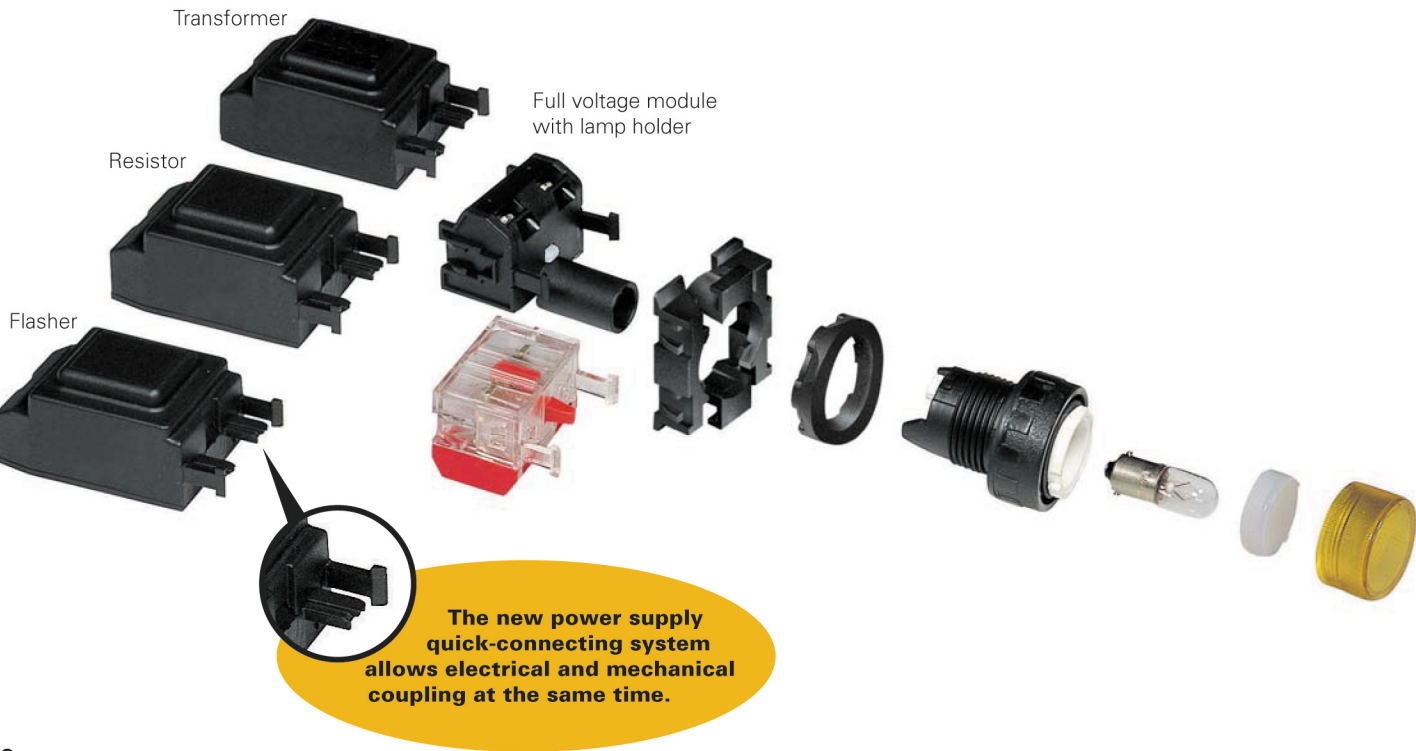
The control switches range includes maintained and momentary push-buttons, illuminated and non-illuminated version, key and knob handle selector switches, pilot lights, joy stick operators, mushroom and emergency stop pushbuttons, insulating enclosures, potentiometric controls, mushroom head control stations: a **complete range** of products built and designed to satisfy every application need.

Benefits

Fixing of thermoplastic bodies is done through central fixing. The new lock-nut with ergonomic design can be easily and safely fixed by hand or with installation tool, now available for the mechanical hard fixing that improves the pushbutton sealings. Lock-nut is now much faster to be assembled on barrel thread. Consequently time will be saved during assembly.

The new thermoplastic **control stations** product line includes **1, 2, 3, and 5 holes** enclosures with IP65 protection class and they are easy to be installed to get simple wiring to contact blocks previously mounted on back panel.

Contact blocks and **power supplies** are **lock coupled** (snap-on system) and can be wired separately from operator to obtain high flexibility and easy installation and maintenance. Ingress protection class is IP20, that avoids accidental finger contact on



electrical parts. Breter contact blocks are available **front and base mounting** and with **screw or fast-on terminals**.

Manufacturing characteristics together with the high modularity level allow a quick mounting and maximum flexibility, reaching a significant **time-saving** as far as installing operations and a strong **cutting of store expenses**.

Approvals

Carefully selected products materials and Company expertise assures optimum quality, long time availability and running security of RM Series control switches as confirmed by the number of approvals and homologations obtained by the most important International Institutes.

Safety

The operator for **emergency stop** pushbuttons has been realized according to EN 60418 safety requirements. Infact, the special operator body construction based on a spring weight mechanical system allows the positive opening of NC contact whenever the coupling system is voluntarily driven, so avoiding all eventual damage to persons or things.

Accessories and further products

Breter range of control switches also covers a wide number of products built to satisfy any application need. For a complete overview of Breter products range and accessories you can have our catalogues upon request or visit the Company Internet site **www.breter.it**

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SERIES RM

Control switches

Ø 16, Ø 22, Ø 30mm central hole fixing

Rated current 5A, 12A

Front degree of protection IP65

Remark: to order Ø22 metal operators with back chromed ring add "CN" to code

Illuminated momentary pushbuttons (IP40)

1

3

2

4

1

3

2

4

1

3

2

4

1NC+1NO

2

3

1

3

2

4

1

3

2

4

1

3

2

4

2NC+2NO

3

3

2

3

1

3

2

4

1

3

2

4

1

3

2

4

3NC+3NO

4

3

1

3

2

4

1

3

2

4

1

3

2

4

4NC+4NO

Illuminated maintained pushbuttons (IP40)

1

3

2

4

1

3

2

4

1

3

2

4

1NC+1NO

2

3

1

3

2

4

1

3

2

4

1

3

2

4

2NC+2NO

3

3

2

3

1

3

2

4

1

3

2

4

1

3

2

4

3NC+3NO

4

3

1

3

2

4

1

3

2

4

1

3

2

4

4NC+4NO

① All pushbuttons include contact blocks

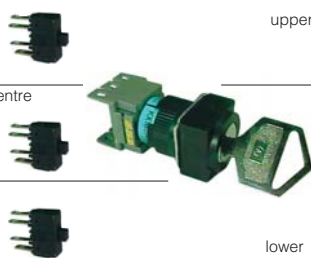

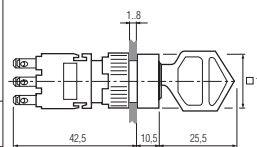

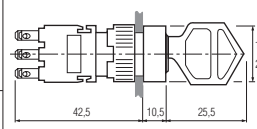

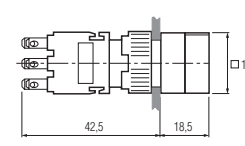

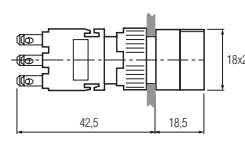
Non-illuminated mushroom pushbuttons (IP40)

	Operator		
<div>momentary mushroom pushbutton ①</div> <div></div>	<div></div>	PF165MROR	<div></div> <div>Ø 24</div>
<div>momentary mushroom pushbutton ①</div> <div></div>	<div></div>	PF165MQUR	<div></div> <div>□ 24</div>
<div>momentary mushroom pushbutton ①</div> <div></div>	<div></div>	PF165MRER	<div></div> <div>18x24</div>
<div>maintained mushroom pushbutton ①</div> <div></div>	<div></div>	PF165AROR	<div></div> <div>Ø 24</div>
<div>maintained mushroom pushbutton ①</div> <div></div>	<div></div>	PF165AQUR	<div></div> <div>□ 24</div>
<div>maintained mushroom pushbutton ①</div> <div></div>	<div></div>	PF165ARER	<div></div> <div>18x24</div>

Signal lamps (IP40)


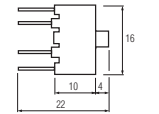

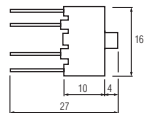

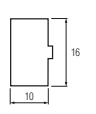

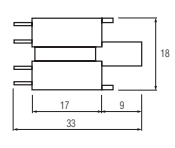
	Operator	Lens		
<div>monolithic</div> <div></div> <div>Diffuser code KS16RO</div>	SL16RO	<div></div>	KC16ROA	<div></div> <div>Ø 18</div> <div>38.5</div> <div>7.5</div>
		<div></div>	KC16ROG	
		<div></div>	KB16RON	
		<div></div>	KC16ROR	
		<div></div>	KC16ROT	
<div>monolithic</div> <div></div> <div>Diffuser code KS16QU</div>	SL16QU	<div></div>	KC16QUA	<div></div> <div>□ 24</div> <div>38.5</div> <div>7.5</div>
		<div></div>	KC16QUG	
		<div></div>	KB16QUN	
		<div></div>	KC16QUR	
		<div></div>	KC16QUT	
<div>monolithic</div> <div></div> <div>Diffuser code KS16RE</div>	SL16RE	<div></div>	KC16REA	<div></div> <div>18x24</div> <div>38.5</div> <div>7.5</div>
		<div></div>	KC16REG	
		<div></div>	KB16REN	
		<div></div>	KC16RER	
		<div></div>	KC16RET	
		<div></div>	KC16REV	

① Contact blocks to be ordered separately


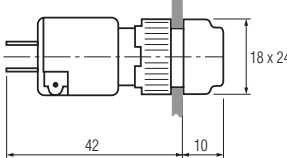
		Positions	90°		90°			
			0	1	1	0	2	
	upper	1NC (1 - 2)	X		X	X		X= Contact closure Closures to be obtained inserting contacts on upper, centre, lower.
		1NO (3 - 4)		X			X	
	centre	1NC (1 - 2)	X			X		
		1NO (3 - 4)		X	X		X	
	lower	1NC (1 - 2)	X			X	X	
		1NO (3 - 4)		X	X			
	key square		KX165AQUA					
			KX165AQUD					
			KX165AQUB					
			KX165MQUA					
					KY165AQUC			
					KY165AQUE			
					KY165MQUE			
	key rectangular		KX165AREA					
			KX165ARED					
			KX165AREB					
			KX165MREA					
					KY165AREC			
					KY165AREE			
					KY165MREE			
	knob handle square		SMX165AQU					
			SMX165MQU					
					SMY165AQU			
					SMY165MQU			
	knob handle rectangular		SMX165ARE					
			SMX165MRE					
					SMY165ARE			
					SMY165MRE			

Contact blocks to be ordered separately
Key code standard: A
Key code on request: B, C, D, E, F
▼ Key-removable
• Position OFF


Contact blocks

	Code		
	1NC+1NO Soldering or inserting terminals type faston 2,8 x 0,5mm	AGX001	
	1NC+1NO wire-wrapping type	AGX001W	
	Dummy unit	AGX002	
	Printed circuit socket (to be fixed max 2 AGX001 contact blocks)	AHX697-P	


“Buzzer”

	Code		
	Continuous sound (without short bar) Intermittent sound (with short bar)	SA24AC-DC	
Sound level 84 dB AT 0,1 m Operation voltage 12..24V AC/DC			





Incandescent lamps “Midget Groove T1 3/4”










	Code	
	6V-1,2W	KM16-6
	14V-1,2W	KM16-14
	24V-1,2W	KM16-24
	28V-1,2W	KM16-28
	48V-1,2W	KM16-48

LED “T1 3/4 Midget Groove MG5 7s/9 ”

	Code	
	6V-0,25W DC	KL16-6G
		KL16-6R
		KL16-6V
	12V-0,25W DC	KL16-12G
		KL16-12R
		KL16-12V
	28V-0,25W DC	KL16-28G
		KL16-28R
		KL16-28V

Protective shields against incidental operations




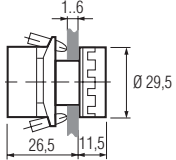





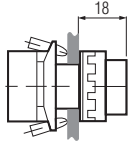






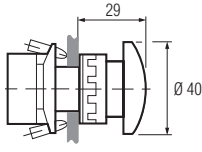



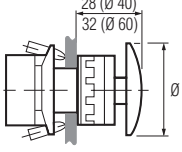




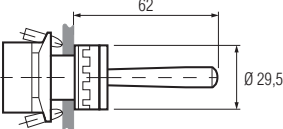



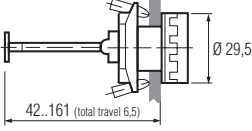





	Code	
	Protective round	KG16RO
	Protective square	KG16QU
	Protective rectangular for single mounting	KG16RE
	Protective rectangular for mounting side	KG16RES

	Code	
	Square protection cap to avoid faulty operations	KCA16QU
	Rectangular protection cap to avoid faulty operations	KCA16RE
	Protective square PVC IP65 (transparent rubber)	KCP16QU
	Protective rectangular PVC IP66 (transparent rubber)	KCP16RE
	Black blanking plate (Ø18mm)	KT16RO
	(18x18mm)	KT16QU
	(18x24mm)	KT16RE
	Contact blocks extractor	ESBC
	Lamps extractor	KEST16
	Mounting key	KEY16
	Key standard (single)	KEYA



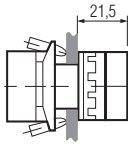







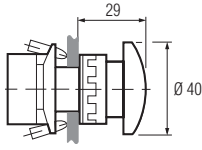



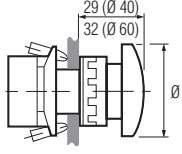

Series RM - Ø 22mm
Non-illuminated pushbuttons
Metal body, round series



Momentary pushbuttons

	Operator	Actuator	
flush guard 	 RM010 ①	 P22804A	
		 P22804G	
		 P22804V	
extended button 	 RM020R	 P22805A	
		 P22805B	
		 P22805G	
		 P22805N	
		 P22805V	
momentary mushroom head 	 RM050R		
	 RM050N		
wobble mushroom head 	 RM055R (Ø 40)		
	 RM055N (Ø 40)		
	 RM056R (Ø 60)		
wobble joy stick 	 RM054R		
pushbutton "reset" 	 G2557	 P22804A	
		 P22804B	
		 P22804G	
		 P22804N	
		 P22804R	
		 P22804V	
		(without symbols)	



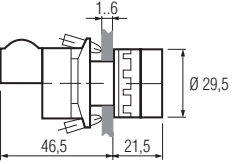








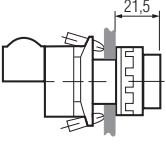







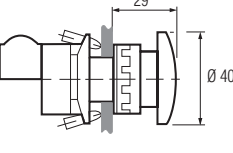

Maintained pushbuttons

	Operator	Actuator	
flush guard push-on / push-off 	RM030 ② Actuator to be ordered separately	 P24728A	
		 P24728B	
		 P24728G	
		 P24728N	
		 P24728R	
		 P24728V	
mushroom head push-on / push-off 	 RM045R ②		
	 RM045N ②		
mushroom head turn to reset 	 RM065R (Ø 40)		
	 RM066R (Ø 60)		



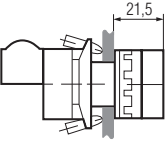







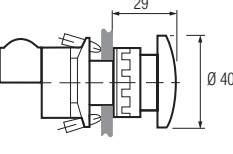



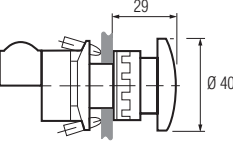


Series RM - Ø 22mm
Illuminated pushbuttons
Metal body, round series

Momentary pushbuttons

	Operator	Actuator	
flush guard 	RM122 Actuator to be ordered separately	 P22814A	
		 P22814G	
		 P22814L	
		 P22814R	
		 P22814T	
		 P22814V	
extended button 	 RM120R	 P22814A	
		 P22814G	
		 P22814L	
		 P22814T	
		 P22814V	
mushroom head 	 RM150R	 P22818G	
		 P22818V	

Maintained pushbuttons

	Operator	Actuator	
flush guard push-on / push-off ④ 	RM130 ③ Actuator to be ordered separately To use only with direct supply	 G2520A	
		 G2520G	
		 G2520R	
		 G2520T	
		 G2520V	
mushroom head push-on / push-off ④ 	 RM145R ③ To use only with direct supply	 G2521G	
		 G2521V	
mushroom head turn to reset 	 RM165R		

① Either red, black and white, actuators are supplied with RM010 operator




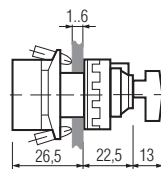








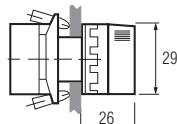








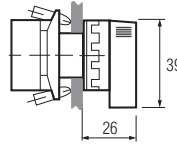








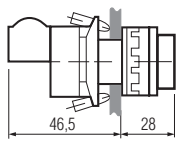



② Contact blocks to be used:  VA0-FA0  V40-F40 max 4 contacts

③ Contact blocks to be used:  VA0-F40  VA0-FA0 max 2 contacts

④ To be used with G2380 (not suitable for additional transformer, resistor, flasher)

Series RM - Ø 22mm
Non-illuminated and illuminated selector switches 2, 3 positions
Metal body, round series



Position		60°		120°		60°		60°		60°		
		0	1	0	1	1	0	2	1	0	2	
 upper	V40	X		X		X			X			X= Contact closure Closures to be obtained inserting contacts on upper or lower.
	V50		X		X			X		X		
	VR0	X		X		X	X		X	X		
	VA0		X		X	X	X		X	X	X	
	V40	X		X		X			X		X	
	V50		X		X			X			X	
	VR0	X		X		X	X		X	X		
	VA0		X		X	X	X		X		X	
 lower	V40											
	V50											
	VR0											
	VA0											
	V40											
	V50											
	VR0											
	VA0											
key selector switches		RM200N										
		RM201N										
		RM250N										
				RM204N								
				RM205N								
				RM254N								
						RM210N				RM213N		
						RM230N	RM232N ①			RM233N		
black short handle		RM300N										
		RM350N										
				RM304N								
				RM354N								
						RM310N	RM312N ①			RM313N		
						RM370N	RM372N			RM373N		
						RM380N				RM383N ②		
												
black long handle		RM400N										
		RM450N										
				RM404N								
				RM454N								
						RM410N	RM412N ①			RM413N		
						RM470N	RM472N			RM473N		
						RM480N				RM483N ②		
												
illuminated ③ short handle		RM650x ③										
		RM655x ③										
		90° RM651x ③										
												

① To obtain a single pole 3-step switch without 0 position, use 1NC + 1NO on upper and 1NC on lower
② To obtain a start-stop selector, use 1NC on upper and 1NO on lower
③ To order replace "x" with colour (A = light-bleu, B = white, G = yellow, R = red, V = green)
▼ Key-removable
• Position OFF
Key code standard: E1



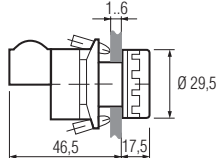







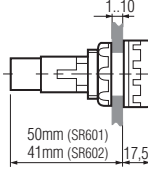







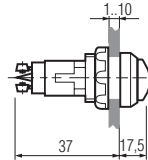





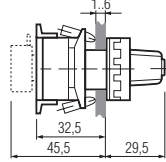


Series RM - Ø 22mm
Joy stick operators 3, 5 positions, pilot lights, potentiometric control
Metal body, round series

Joy stick operators




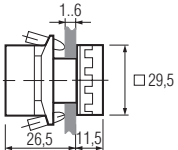





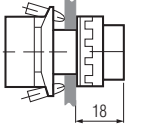






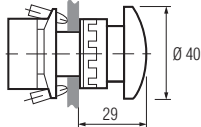
Position		90°				90°				
		2	0	1	3	2	0	1	4	
										<p>X= Contact closure</p> <p>Closures to be obtained inserting contacts on upper or lower.</p>
 upper	 V40			X				X		
	 V50	X				X				
	 VA0	X	X		X	X	X		X	
	 V40	X			X					
	 V50			X					X	
	 VA0		X	X		X	X	X	X	
joy stick operator ① without latch	 2 · 1	M2530NM							 Ø 34 27 89	
	 2 → · 1	M2531NM								
	 3 2 · 1 4				M2550NM					
	 3 2 → · 1 4				M2551NM					
joy stick operator ① with mechanical latch in "0" position	 2 · 1	M2570NM							 Ø 34 27 89	
	 2 → · 1	M2571NM								
	 3 2 · 1 4				M2580NM					
	 3 2 → · 1 4				M2581NM					

Pilot lights and potentiometric control



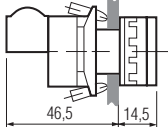








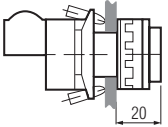




	Operator	Lens	
pilot light accepts additional power supplies 	RM600 (BA 9s)	 P22821A	
	<i>Lens and diffuser to be ordered separately</i>	 P22821G	
		 P22821L	
		 P22821R	
		 P22821T	
		 P22821V	
monolithic pilot light thermoplastic 	SR601 (BA 9s)	 P22821A	
	SR602 (E10)	 P22821G	
	<i>Lens and diffuser to be ordered separately</i>	 P22821L	
		 P22821R	
		 P22821T	
		 P22821V	
monolithic pilot light thermoplastic 	S22BA9S (BA 9s)	 G2839A	
	S22E10 (E10)	 G2839B	
	<i>Lens and diffuser to be ordered separately</i>	 G2839G	
		 G2839R	
		 G2839V	
potentiometric control 	RM910		
	Suitable for potentiometers with Ø 6mm min. shaft 50 mm (potentiometer not supplied)		

① All joy stick operators include legend plate



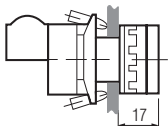





Non-illuminated momentary pushbuttons

	Operator	Actuator	
flush guard 	 QM010 ①	 P22857A	
		 P22857G	
		 P22857V	
extended button 	 QM020R	 P22858A	
		 P22858B	
		 P22858G	
		 P22858N	
		 P22858V	
momentary mushroom head 	 QM050R		

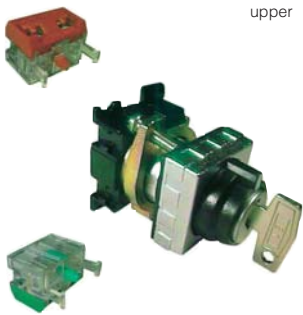




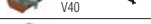
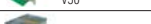









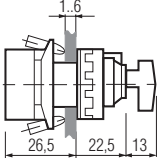







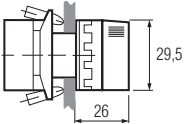





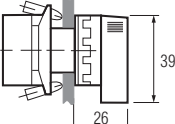





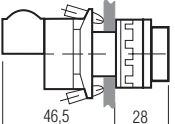


Illuminated momentary pushbuttons

	Operator	Actuator	
flush guard 	QM122 ② Actuator to be ordered separately	 T1001A	
		 T1001G	
		 T1001L	
		 T1001R	
		 T1001T	
		 T1001V	
extended button 	 QM120R	 T1002V	
		 T1002G	
		 T1002A	
		 T1002L	
		 T1002T	

Pilot light

	Operator	Lens	
	QM600 ② (BA 9s) Actuator to be ordered separately	 P22853A	
		 P22853G	
		 P22853L	
		 P22853R	
		 P22853T	
	Accepts additional supplies	 P22853V	

① Either red, black and white, actuators are supplied with QM010 operator
② Use lamps 23mm max length

Positions		60° 0 1	120° 0 1 1 0 2	60° 1 0 2	60° 1 0 2	60° 1 0 2	
 upper	 V40	X	X	X	X	X	X
	 V50	X	X	X	X	X	X
	 VR0	X	X	X	X	X	X
	 VA0	X	X	X	X	X	X
	 V40	X	X	X	X	X	X
	 V50	X	X	X	X	X	X
	 VR0	X	X	X	X	X	X
	 VA0	X	X	X	X	X	X
 lower	 V40	X	X	X	X	X	X
	 V50	X	X	X	X	X	X
	 VR0	X	X	X	X	X	X
	 VA0	X	X	X	X	X	X
key selector switches 	 QM200N						
	 QM201N						
	 QM250N						
	 QM204N						
	 QM205N						
	 QM254N						
black short handle 	 QM300N						
	 QM350N						
	 QM304N						
	 QM354N						
black long handle 	 QM400N						
	 QM450N						
	 QM404N						
	 QM454N						
illuminated ③ short handle 	 QM650x ③						
	 QM655x ③						
	 QM651x ③						

① To obtain a single pole 3-step switch without 0 position, use 1NC + 1NO on upper and 1NC on lower
② To obtain a start-stop selector, use 1NC on upper and 1NO on lower
③ To order replace "x" with colour (A = light bleu, B = white, G = yellow, R = red, V = green)

▼ Key-removable
• Position OFF
Key code standard: E1

Series RM - Ø 22mm
Non-illuminated and illuminated pushbuttons
Thermoplastic body



Momentary pushbuttons, round and square series

Operator	Actuator	
flush guard	RT010 Actuator to be ordered separately	P22804A
		P22804B
		P22804G
		P22804N
		P22804R
		P22804V
		P22805A
		P22805B
		P22805G
		P22805N
extended button		P22805R
		P22805V
wobble joy-stick	RT054R	
momentary mushroom head	RT050R	
wobble mushroom pushbutton	RT055R (Ø 40)	
	RT056R (Ø 60)	
illuminated momentary pushbutton	RT120 Actuator to be ordered separately	P22814
		P22814
		P22814
		P22814
		P22814
		P22818R
		P22818V
		P22818G
pushbutton "reset"	G2556	P22804A
		P22804B
		P22804G
		P22804N
		P22804R
flush guard	QT010 Actuator to be ordered separately	P22804V
		P22857A
		P22857B
		P22857G
		P22857N
		P22857R
		P22857V
		P22858A
		P22858B
		P22858G
extended button		P22858N
		P22858R
		P22858V



Series RM - Ø 22mm
Non-illuminated pushbuttons, pilot lights and potentiometric
Thermoplastic body

Maintained pushbuttons, round series

	Operator	Actuator	
flush guard push-on / push-off	RT030 ① Actuator to be ordered separately	P24728A	
		P24728B	
		P24728G	
		P24728N	
		P24728R	
mushroom head push-on / push-off	RT045R ①		
	RT045N ①		

Momentary dual operator pushbutton, square series

	Operator	
 IP 40	QT011 QT011A QT011B	
	To obtain warning light add direct supply G3820 (see pag. 26)	









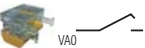

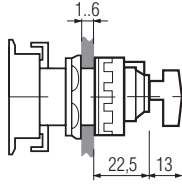










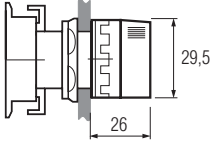







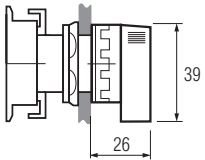






Pilot lights and potentiometric control

	Operator	Lens	
pilot light for add-on power supplies	RT600	P22821A	
		P22821G	
		P22821L	
		P22821R	
		P22821T	
monolithic Ø 16mm	S16BA9S (BA 9s)	P22821V	
		P21493A	
		P21493B	
		P21493G	
		P21493R	
	S16E10 (E10)	P21493V	
		P20827A	
		P20827B	
		P20827G	
		P20827R	
jumbo	IP67	P20827V	
		5410G (E14)	
		5410R (E14)	
		5410V (E14)	
		5410A (E14)	
		5410B (E14)	
		5410L (E14)	
potentiometric control	RT910	5410T (E14)	

① Contact blocks to be used: VAO-FA0 V40-F40 max 4 contacts

Series RM - Ø 22mm
Non-illuminated selector switches 2, 3 positions
Thermoplastic body, round series



Positions		60°		120°		60°		60°		60°		60°				
		0	1	0	1	1	0	2	1	0	2	1	0		2	
	upper		X		X		X		X			X	X		X= Contact closure Closures to be obtained inserting contacts on upper or lower.	
				X		X		X			X	X				
			X		X		X	X		X	X		X	X		
				X		X		X	X		X	X	X			
			X		X		X			X		X	X			
				X		X		X			X			X		
			X		X		X	X		X	X		X	X		
lower			X		X		X	X	X		X			X		
key selector switches			RT200N													
		RT201N														
		RT250N														
				RT204N												
				RT205N												
				RT254N												
						RT210N				RT213N						
						RT230N		RT232N ①		RT233N						
						RT270N										
						RT280N				RT283N						
black short handle			RT300N													
		RT350N														
				RT304N												
				RT354N												
						RT310N		RT312N ①		RT313N						
						RT370N		RT372N		RT373N						
						RT380N				RT383N ②						
black long handle			RT400N													
		RT450N														
				RT404N												
				RT454N												
						RT410N		RT412N ①		RT413N						
						RT470N		RT472N		RT473N						
						RT480N				RT483N ②						

① To obtain a single pole 3-step switch without 0 position, use 1NC + 1NO on upper and 1NC on lower
② To obtain a start-stop selector, use 1NC on upper and 1NO on lower
▼ Key-removable
• Position OFF
Key code standard: E1



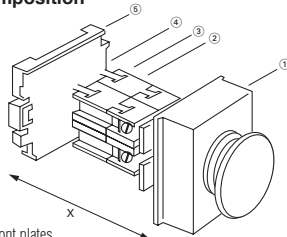
Series RM
Emergency stop mushroom pushbuttons
Thermoplastic body, round series

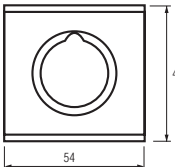
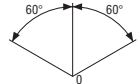
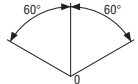
Emergency stop mushroom pushbuttons Ø 22mm according to EN 60418 safety requirements

Operator		
	RT065RV40 ① including 1NC + IP20 terminal protection (by using normally open contact blocks "NO", PLS. Foresee early closed VAO-FAO)	
	RT065R ① (without contact block) (by using normally open contact blocks "NO", PLS. Foresee early closed VAO-FAO)	
	PN94 ② (by using normally open contact blocks "NO", PLS. Foresee base mounting early closed G. 2546)	
	RT064R (by using normally open contact blocks "NO", PLS. Foresee early closed VAO-FAO)	
	RT075R (by using normally open contact blocks "NO", PLS. Foresee early closed VAO-FAO)	


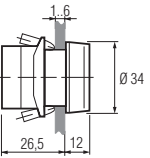






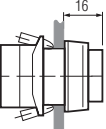

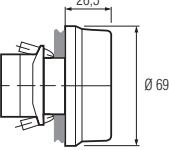

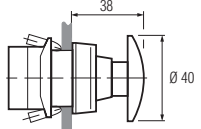


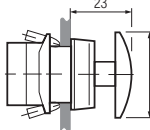

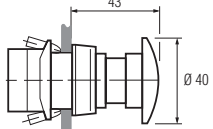

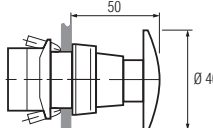


By request, all control stations type PN are available with ground and neutral terminal (part n. G3817)
① Contact block type used: V40 U_p max 600V, I_p max 10A - AC15
② Metric cable glands M16/20

Round series for mounting on DIN rail


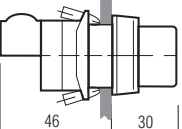






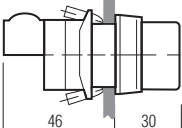

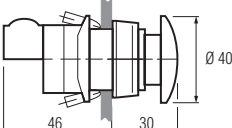
Composition		To obtain a control switch or signaling for mounting on DIN 46277/3 rail with an X available depth, order the following:											
		X = mm											
		45		58		70							
		Operator		1		1		1					
		N. of contact blocks		1 2		1 2		1 2 3 4					
		N. of additional spacers		type G2539 (h=12,5mm)		-		1 1		-			
		type G2540 (h= 5mm)		-		-		1 1		1 1			
		type G2541 (h=20mm)		1 -		1 -		3 2		1 -			
Contact mounting support G2538		1		1		1							
Mounting plate for DIN rail G2535		1		1		1							
Front plates (see below)		1		1		1							

Front plates													
													
Code		blank				Code							
P24920						P25143		1		2			
P25141		0 1				P25144		OFF		ON			
P25142		2 0 1				P25145		0		1			

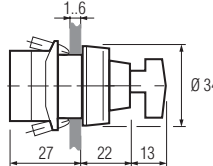


















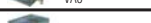
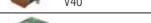
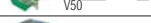

Non-illuminated momentary pushbuttons

	Actuator colour	Operator	
flush guard		M6010A	
		M6010B	
		M6010G	
		M6010N	
		M6010R	
		M6010V	
extended button		M6020R	
flush guard		M6080N	
momentary mushroom head		M6050N	
		M6050R	
wobble mushroom head		M6055R	
maintained, mushroom head turn to reset		M6065R	
maintained, mushroom push-on/push-off, thermoplastic body		T6045R	
Contact blocks to be used  V40-F40  VA0-FA0 max 4 contacts			

Illuminated momentary pushbuttons

	Actuator colour	Operator	
flush guard		M6122A 406	
		M6122B 406	
		M6122G 406	
		M6122R 406	
		M6122V 406	
		M6120R 406	
extended button		M6120R 406	
mushroom head		M6150R 406	

Selector switches complete of legend plate
















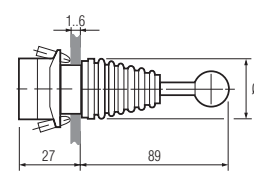





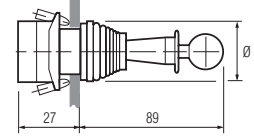



Positions		60°		120°		60°		60°		60°					
		0	1	0	1	1	0	2	1	0	2		1	0	2
															
	upper		X		X		X		X				X	X	X= Contact closure Closures to be obtained inserting contacts on upper or lower.
				X		X		X			X	X			
			X		X		X	X		X	X		X	X	
				X		X		X	X		X	X	X		
			X		X		X			X		X	X		
				X		X		X			X			X	
			X		X		X	X		X	X		X	X	
				X		X		X	X	X		X		X	
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① To obtain a single pole 3-step switch (without 0 position), use 2NC + 1NO
② To obtain a start-stop selector switch, use 1NC + 1NO
③ To order replace "x" with colour (A = light-blue, B = white, G = yellow, R = red, V = green)
④ Supplied with V40 + V50 contact blocks
Key code standard: E1
Key code on request: G01..G10

▼ Key removable
• Position OFF


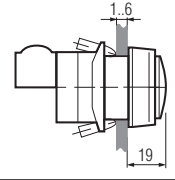
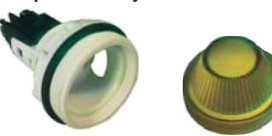
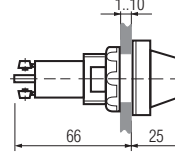
Series RM - Ø 30mm
Joy stick operators 3, 5 positions and pilot lights
Metal body, round series



		Positions		90°				90°				
				2	0	1	3	2	0	1	4	
	upper	 V40				X				X		
		 V50		X				X				
		 VA0		X	X		X	X	X		X	
		 V40		X			X					
		 V50				X					X	
		 VA0			X	X		X	X	X	X	
											X= Contact closure	
											Closures to be obtained inserting contact blocks on upper or lower	
			M6530NM									
			M6531NM									
						M6550NM						
						M6551NM						
			M6570NM									
			M6571NM									
						M6580NM						
						M6581NM						

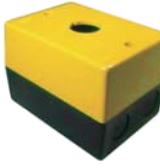
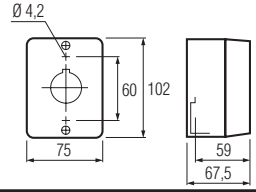
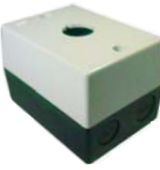
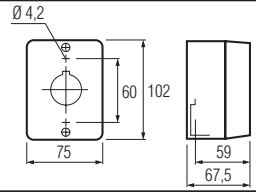

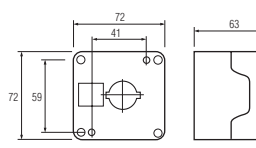

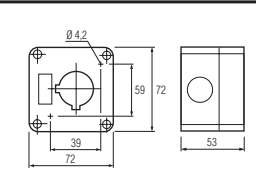

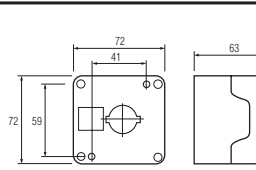

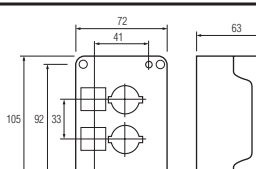

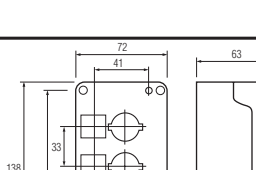

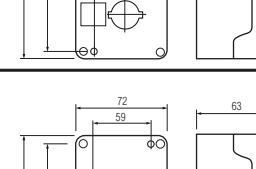
① All joy stick operators include legend plate

Pilot lights

	Operator	Lens	
 for additional supplies	M6631 (BA 9s)	G2842A	
		G2842B	
		G2842G	
		G2842R	
		G2842V	
 monolithic light thermoplastic body	S30BA15D (BA 15d) S30E14 (E14)	P21491A	
		P21491B	
		P21491G	
		P21491R	
		P21491V	



Series RM
Insulating enclosures
Enclosures without control units 1, 2, 3, 5 holes Ø 22, 30mm


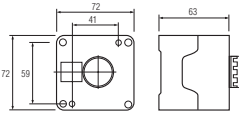



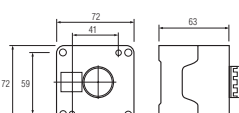



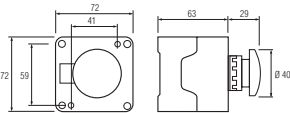


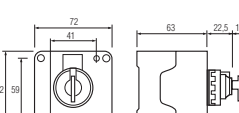


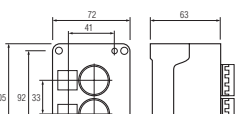





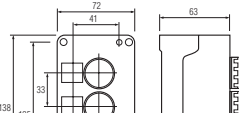













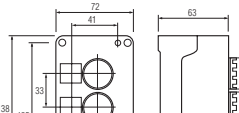












No. holes	Ø 22	Ø 30	
1 hole  IP54	CT7023 (PG 13,5)	CT7031 (PG 13,5)	
1 hole  IP54	CT7022 (PG 13,5)	CT7030 (PG 13,5)	
1 hole ②  IP54	PN22-1G (M 16/20) PN22-1G-PG (Pg 11/16)		
1 hole ②  IP54		PT30-1H ① (PG 13,5)	
1 hole ②  IP54	PN22-1H (M 16/20) PN22-1H-PG (Pg 11/16)		
2 holes ②  IP54	PN22-2 (M 16/20) PN22-2-PG (Pg 11/16)		
3 holes ②  IP54	PN22-3 (M 16/20) PN22-3-PG (Pg 11/16)		
5 holes ②  IP54	PN22-5 (M 20/25) PN22-5-PG (Pg 11/16)		

By request, ground and neutral terminals are available for all "PN" control stations (part n. G3817)

① For base mounting contact blocks assemblies, please order also (code P25461)

② For metal control switches assemblies in "PN" control station used P3823 (see pag.28, RM accessories)

Enclosures type PN are suitable for thermoplastic operators RT and QT series.




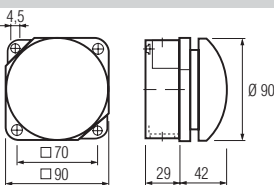



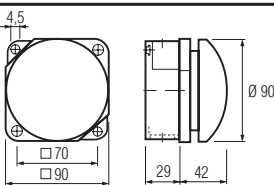



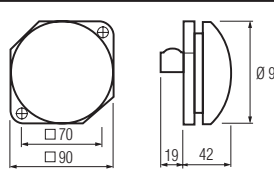
	contacts		Part number	Cable glands	
flush guard 	Stop		PN81N ①	M16/20	
			PN81R ①	M16/20	
	Stop		PN81N-PG	Pg11/16	
			PN81R-PG	Pg11/16	
flush guard 	Start		PN81B ①	M16/20	
			PN81V ①	M16/20	
	Start		PN81B-PG	Pg11/16	
			PN81V-PG	Pg11/16	
wobble mushroom 	Stop		PN85R ①	M16/20	
			PN85R-PG	Pg11/16	
key selector 	0 - 1		PN200N ①	M16/20	
			PN200N-PG	Pg11/16	
flush guards 	Stop	Start	PN82 ①	M16/20	
			PN82A ①	M16/20	
	Stop	Start	PN82-PG	Pg11/16	
			PN82A-PG	Pg11/16	
flush guards 	Indietro	Stop	Avanti	PN83 ①	
				M16/20	
				PN83A ①	
				M16/20	
	Indietro	Stop	Avanti	PN83-PG	
				Pg11/16	
flush guards and pilot light 	Stop	Start	Pilot light	PN87 ①	
				M16/20	
				PN87A ①	
				M16/20	
	Stop	Start	Pilot light	PN87-PG	
				Pg11/16	

By request, ground or neutral terminals are available for all "PN" control stations (part n. G3817)




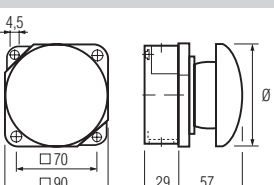



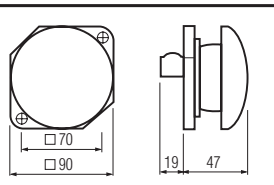
① Accept PG 13,5 cable glands assembled on M20 knock-out

② Same as PN83A but with legend plate "forward-stop-reverse"




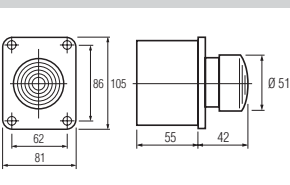



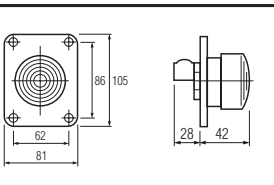
Thermoplastic control stations

	Operator		
mushroom head 		4090R ① 	
IP65			
mushroom head 		4090N ① 	
IP65			
mushroom head flush mounting 		4091R 	
IP65			

Thermoplastic control stations

	Operator		
wobble mushroom 		4190R ① 	
IP65			
wobble mushroom flush mounting 		4191R 	
IP65			




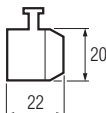









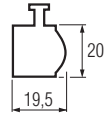









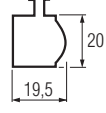









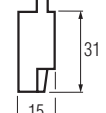
Metal control stations

	Operator		
mushroom head 		5090R ② 	
IP65			
mushroom head flush mounting 		5091R 	
IP65			


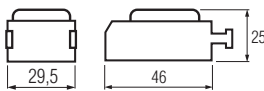

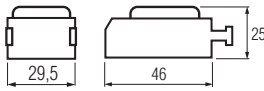

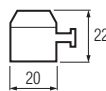

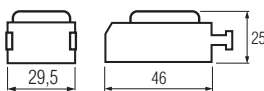

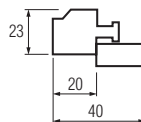
① Boxes with knockouts for Pg 13,5 cable gland (part n. G2519) or Ø 21 grommets (part n. P9695)

② Supplied with grommets and suitable for Pg 13,5 cable gland (part n. G2519)

Contact blocks

	Function	Diagram	Code	
<div>with screw terminals</div> 	 1NC		V40	
	 1NO		V50	
	 1NC late break		VR0	
	 1NO early closure		VA0	
	(to connect eyelet terminals remove the coloured protection)			
<div>with screw terminals</div>  (base mounting type for PN control stations) IP20	 1NC		G1769	
	 1NO		G1770	
	 1NC late break		G2545	
	 1NO early closure		G2546	
<div>with faston terminals</div> 	 1NC		F40	
	 1NO		F50	
	 1NC late break		FR0	
	 1NO early closure		FA0	
<div>with faston terminals</div> 	 1NC+1NO		210	
Wiring connections should be in same polarity				

Power supplies





	Voltages	Lamps	Code	
transformer 	110/6V	6..7,5V - 0,6..1,2W	T16	
	230/6V		T26	
	110/24V	24V - 1,2W	T12	
	230/24V		T22	
resistor 	110/48V	48V - 1,2W AC/DC	R14	
	230/130V	130V - 2W AC/DC	R21	
resistor with diode 	110/48V	48V - 1,2W AC	RD1	
	220/130V	130V - 2,6W AC	RD2	
flasher 	12..130V	2..12W AC/DC	L130	
full voltage module with lamp holder  IP20	Base mounting for control station		G2134	
	Direct supply for modular illuminated control switches		G3820	

Test pushbuttons


Red marked connections are to be made in relation to the various types of power supplies












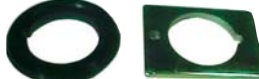


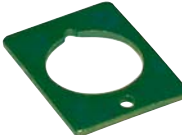


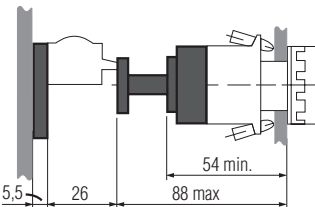

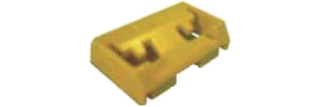







Lamps

	Voltages/Watt	Code	
BA 9s filament 	6V-1,2W	A14591/15	
	24V-2W	AP14591/6	
	36V-2W	A14591/18	
	48V-1,2W	AP14591/7	
	130V-2W	A14591/14	
BA 9s neon 	220V	A14591/13	
E10 filament 	24V-3W	AP11066/1	
E10 neon 	220V	AP11066/9	







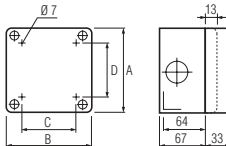
Led

	Voltages/Watt	Code	
BA 9s Socket 	240 Vac-0,6W	Led 240 V	
		Led 240 R	
		Led 240 M	
		Led 240 A	
		Led 240 B	
	120 Vac-0,6W	Led 120 V	
		Led 120 R	
		Led 120 M	
		Led 120 A	
		Led 120 B	
	24 Vac/DC-0,5W	Led 24 V	
		Led 24 R	
		Led 24 M	
		Led 24 A	
		Led 24 B	

	Description		Code	
 IP66	Seal caps	RM / RT010		P17482N
				P17482R
				P174820
				P17482V
		M6010		P17483N
				P17483R
				P174830
	QM / QT010		P24280	
	QT011		P24293	
	Flush metal guard for illuminated pushbutton	M6122		P19255
	Caps to cover unused holes	Ø 22		G1299
		Ø 30		G1300
	Lamps remover BA 9s / E10			P21734
	Panel hole adapter from Ø 30 to Ø 22	RM / RT (round series)		G2326
		QM / QT (square series)		G2327
	Washer to reinforce thin panels	Ø 22		P18822
		Ø 30		P18823
	Earthing cover plate Ø 22 series			G2621
	Backing plate for mounting metal body control switches on PN control station			P3823

	Description		Code	
	Base mount plate metal non-illuminated operators only Ø 22			1415
	Direct power supply for enclosure			G2134
	Screw terminal mounting on back panel	1NC		G1769
		1NO		G1770
	Late break	1NC		G2545
	Early make	1NO		G2546
	Dust-tight cover plates	1 contact block		P15973
		2 contact blocks		P18096
	Base mounting plate for	1 contact block		P22021
		2 contact blocks		G2538
	Installation tool for tightening the central fixture nut (Ø22mm)			P3906
	Terminal protection IP20	V40		P24417R
		V50		P24418V
		VR0		P24419H
		VA0		P24420G
		for direct supply		P24854N
	6,35mm slip on terminal for screw terminal connection			1417
	6,35mm double slip on terminal for F40-F50-FA0-FR0 contact blocks			1418
	Standard key for selector switches			A00CH00E1



Enclosures

	covers				boxes	A B C D						
	knockout holes Ø 22		without holes			(dimensions in mm)						
	No. of halls	h 13 mm	h 13 mm	h 33 mm								
	1	Ø 22 Ø 30	P1B-0122 P1B-0130	P1B	P1A	C1	①	91	91	71	46	
	2	Ø 22 Ø 30	P2B-0222 P2B-0230	P2B	P2A	C2	①	151	91	71	106	   
	3	Ø 22 Ø 30	P2B-0322 P2B-0330									
	4		P2B-0422									
	6		P2B-0622									
				P3B		C3	①	204	91	71	159	
				P4B		C4	②	256	91	71	211	
				P5B		C5	②	360	91	71	315	
				P6A	C6	②	204	169	149	159		
				P8A	C8	③	290	257	237	245		

Sealed fiberglass and polyester resin
Self-extinguishing, withstands shocks and chemical agents


- ① Boxes with knockouts for Pg 16 cable gland
② Boxes with knockouts for Pg 21 cable gland
③ Boxes with knockouts for Pg 29 cable gland

Buttons and internal lenses with ISO symbols ①

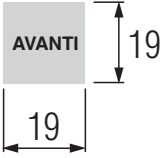
	SYMBOLS / INSCRIPTIONS	BUTTONS		INTERNAL LENSES	
		RM010 / RT010		RM120 RM122	SR601 - 2 RM600
Ø 22 round series 	○	P24200R	P24200N	P24230	P24245
	I	P24201N	P24201B	P24201V	P24231
	II	P24202N		P24202V	P24232
	⚡	P24203N	P24203V	P24233	P24234
	STOP	P24204R		P24234	P24235
	START	P24205N	P24205V	P24235	P24236
	ARRESTO	P24206R		P24236	P24237
	MARCIA	P24207N	P24207V	P24237	
	SYMBOLS / INSCRIPTIONS	BUTTONS		INTERNAL LENSES	
		QM010 / QT010		QM120 QM122	QM600
Ø 22 square series 	○	P24215R		P24784	P24769
	I	P24216N	P24216V	P24785	P24770
	II	P24217N	P24217V	P24786	P24771
	⚡	P24218N	P24218V	P24787	P24772
	STOP	P24219R		P24788	P24773
	START	P24220N	P24220V	P24789	P24774
	ARRESTO	P24221R		P24790	P24775
	MARCIA	P24222N	P24222V	P24791	P24776

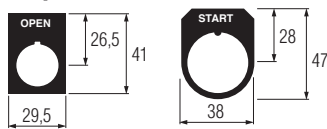
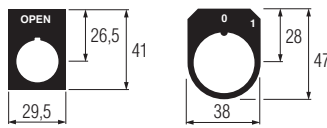
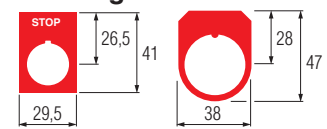
① R = red, V= green, N = black

Legend plates for PT control stations

	Description	
	Self adhesive legend plate (for insulating enclosures) AVANTI INDIETRO FORWARD REVERSE START STOP 0 - 1 BLANK	P25467 P25468 P25469 P25470 P25465 P25466 P25481 P25464

Legend plates for PN control stations

	Description	
	Self adhesive legend plate (for insulating enclosures) START STOP AVANTI INDIETRO FORWARD REVERSE ON OFF IMPULSO MARCHE ARRET ARRIERE AVANT MONTEE DESCENTE SINISTRA DESTRA NED OP UP DOWN APRE CHIUDE 0 1 2 0 1 1 0 2	P3980 P3981 P3982 P3983 P3984 P3985 P3986 P3987 P3988 P3989 P3990 P3991 P3992 P3993 P3994 P3995 P3996 P3997 P3998 P3999 P4000 P4001 P4002 P4003 P4004 P4005

Ø 22	Ø30	Description		Ø 22	Ø 30
for pushbuttons 		ACCESO		P24445	
		APRE		P22914	P13071
		ARRESTO		P22906	P13062
		AUMENTA		P24286	P13076
		AUTOMATICO		P22920	P15413
		AVANTI		P22907	P13063
		CHIUDE		P22913	P13070
		CLOSE		P24526	
		CLOSED		P22930	
		DESTRA		P22912	P13069
		DIMINUISCE		P24287	P13077
		DISCESA		P22910	P13066
		DISINSERITO		P22916	
		DOWN		P22936	
		FAST		P22937	
		FORWARD		P22941	
		IN		P22933	
		INCH		P22939	
		INDIETRO		P22908	P13064
		INSERITO		P22915	P13078
		LENTO		P22917	P13084
		MANUALE		P22919	
		MARCIA		P22905	P13061
		OFF		P22932	P17997
		ON		P22931	P17996
		OPEN		P22929	
		OUT		P22934	
		RAPIDO		P22918	P13085
		REVERSE		P22942	
		RUN		P22940	
		SALITA		P22909	P13065
		SINISTRA		P22911	P13068
		SLOW		P22938	
		SPENTO		P24446	
		START		P24520	P13087
		STOP		P24521	P13088
		UP		P22935	
for selector switches 		0	1	P22923	P17380
		0	1	P24804	
		1	2	P22988	
		1	0	P24720	
		2	0	P22922	P13055
		APRE	CHIUDE	P22926	
		ARR.	MARCIA	P22925	
		AUTO	MAN	P22924	
		AUTO	0	P22928	
		AVAN.	0	P22976	
		INS	DIS	P24711	
		ON	OFF	P25763	
		OPEN	OFF	P22927	
			0	P22921	P13148
			OFF	P24447	
			0	P24721	
			1	P24805	
red background 		ARRESTO		P22949	
		EMERGENZA		P22950	
		STOP		P22948	
		BLANK		P22851	P18007R

Ø 22	Ø30	Description	Ø 22	Ø 30
		In alluminium to be engraved <i>BLANK</i>	P24143	P13086
		In thermoplastic to be marked-up <i>BLANK</i>	P22850	P18007
		In alluminium 8,5x27,5 to be engraved <i>BLANK</i>	G2382	
		In alluminium to be engraved <i>BLANK</i>	P24802	
		In thermoplastic to be marked-up <i>BLANK</i>	P24907	P20892
		In thermoplastic - yellow background <i>BLANK</i>	P25961G	P21186
		Self adhesive legende plate - yellow background ARRESTO EMERGENZA EMERGENCY STOP <i>BLANK</i>	P26723 P26721 P26720	
		Self adhesive legende plate - yellow background ARRESTO EMERGENZA EMERGENCY STOP <i>BLANK</i>	P24006 P24007 P24005	
		In thermoplastic EMERGENCY STOP	P25692	



ALTERNATING CURRENT (IEC / EN 60947-5-1)


ALTERNATING CURRENT (IEC / EN 60947-5-1)				Contact blocks									
		AGX001 (Ø 16 series)		V40-V50-VA0-VR0-F40-F50-FA0-FR0 (Ø 22, 30 series)								210 (Ø 22, 30 series)	
Rated isolation voltage U_i	V	250 (60V Buzzer)		690								250	
Rated impulse voltage U_{imp}	kV	-		6								-	
Rated voltage U_e	V	100..125 200..220		24	48	110/120	240	400	500	600	250		
Rated current I_e													
AC-15 Electromagnetic loads >72VA	A	0,3	0,2	10	8,5	6,5	4,5	2,6	2,1	1,6	-		
AC-12 Resistive loads and solid state loads with insulation by opto couplers	A	1,5	1	-	-	-	-	-	-	-	-		
AC-13 Solid state loads with transformer insulation	A	1	0,7	-	-	-	-	-	-	-	-		
Minimum operating levels		5V AC/DC - 2 mA		28V DC - 7 mA									
Rated thermal current													
open (IEC) I_{th}	A	5		12								10	
enclosed (IEC-UL/CSA) I_{the}	A	-		10								10	
Category / Protection class		-		C Group (VDE01106) / Class II (CEI 23-11)								-	
Wasted power at thermal rated current I_{the}		W		≤ 0,3								-	
Short-circuit protection		1 kA (fuse 1A)		1 kA (fuse NDZ 10A-500V gL/gG)								-	

DIRECT CURRENT (IEC / EN 60947-5-1)		AGX001		V40, V50, F40, F50							
				VA0, VR0, FA0, FR0			250	440	500	600	
		24	100..110	24	48	125					
RATED VOLTAGE U_B	V	24	100..110	24	48	125	250	440	500	600	
DC-12 Resistive loads and solid state loads with insulation by opto couplers											
Rated current I_B	A	1	0,2	-	-	-	-	-	-	-	
DC-13 Control of electromagnets											
Rated current I_B	A	0,7	0,15	4	2	1,1	0,55	0,31	0,27	0,2	

Electrical life in AC with U_e, I_e (operations)	100.000	400.000 (AC-15)				
Electrical life in DC with U_e, I_e (operations)	100.000	- (DC-13)				

UL / CSA		V40, V50, F40, F50	VA0, VR0, FA0, FR0	210
General use		5A-250V AC 1A-24V DC 0,2A-125V DC	6A-600V AC / 6A-125V DC	6A-600V AC / 4A-125V DC
Heavy Pilot Duty (HD)	code designation		A600(HD)	A600(HD)
Standard Duty (SD)	code designation		P600 (SD)	P150 (SD)

POWER SUPPLIES (Ø 22, 30 series)

		Direct supply	Transformer		Resistor		Flasher	
Rated isolation voltage	U _i	V	250	-	250		250	
Maximum rated voltage	U _{B max}	V	250	-	250		24	130
Rated voltage primary circuit	V	-	110/220	110/220/380	110/220	220	-	-
Rated voltage secondary circuit	V	-	6	24	48	130	-	-
Frequency	Hz	-	50/60	50/60	-	-	50/60	50/60
Flash frequency at rated voltage (per min.)		-	-	-	-	-	70 ± 10	70 ± 5
Flash begins at minute - at rated voltage		-	-	-	-	-	< 20 sec	immediate
Power supply		AC-DC	AC		AC-DC		AC-DC	AC
Rated power	W	2	0,6..1	2..3	1,2	2..2,6	2..12	1..12
Short-circuit resistant of the secondary circuit for building								
Max. wire gauges								
Terminal sizes according to IEC / EN 60947-5-1		A3	A2		A1		A3	
Rigid and stranded	N. x mm²	1 x 0,5..3,3 o 2 x 2,5	1 x 1..2,5 o 2 x 2,5		1 x 0,75..1,5 o 2 x 1,5		1 x 0,5..3,3 o 2 x 2,5	
	N. x AWG	1 x 20..12 o 2 x 14	1 x 14..12 o 2 x 14		1 x 18..16 o 2 x 16		1 x 20..12 o 2 x 14	
Terminals	Type	screw	screw		screw		screw	
	Thread	M3,5	M3,5		M3,5		M3,5	
	Screwdriver size	3/2	3/2		2		3/2	



PILOT LIGHTS

Ø 16 series			Ø 22, 30 series		Monolithic			Jumbo light
Connection lamp holder			Midget Groove T1 3/4	BA 9s	Ø 16 BA 9s/E10	Ø 22 BA 9s/E10	Ø 30 E14/BA 15d	E14
Rated voltage	W	1,2	2	3	3	6	15	
Rated isolation voltage U_i	V	250	250	250	250	250	250	
Maximum rated voltage $U_{e\ max}$	V	250	250	250	250	250	250	
Rated impulse voltage U_{imp}	kV	4	4	4	4	4	4	
Max. wire gauges								
Terminal sizes according to IEC/EN 60947-1			A3		B1	A1	A2	
Stranded/Solid wire	N° x mm²	2 x 0,8	2 x 0,5..1,5	2 x 0,75..1,5	2 x 0,5..1,5	2 x 0,75..1,5	2 x 1..2,5	
	N° x AWG	2 x 20	2 x 20..16	2 x 18..16	2 x 20..16	2 x 18..16	2 x 18..14	
Terminals	Recommended torque Nm		0,8	0,5	0,8	0,8	1	
	Type	soldering	screw	screw	screw	screw	screw	
	Thread		M3	M3	M3	M3	M3,5	
	Screwdriver size		2/-	2/-	2/-	2/-	3/2	

ENVIRONMENTAL DATA		(Ø 16 series)		(Ø 22, 30 series - Monolithic signal - Jumbo light)	
Ambient temperature:		Operation:	-5°C ... +70°C	-25°C ... +60°C	
		Storage:	-25°C ... +80°C	-40°C ... +80°C	

AGX001		V40-V50-VA0-VR0-F40-F50-FA0-FR0	
(Ø 16 series)		(Ø 22, 30 series- Monolithic signal - Jumbo ligh)	
MECHANICAL DATA			
Protection class according to IEC / EN 60529			
Front	IP 40 (IP 65 selector switches)		IP65
Base	IP00		IP20
Mechanical life (Mio. operations)			
Illuminated / non-illuminated momentary pushbuttons	1		6
Illuminated / non-illuminated maintained pushbuttons	1		1
Non-illuminated selector switches	0,25		1
Illuminated selector switches			0,2
Emergency mushroom pushbutton			0,2
Maintained mushroom pushbuttons			0,2
Maintained push-on / push off pushbuttons			1
Joy stick operators			1
Control stations with momentary operators			6
Vibration whithstand (base mounting)			
Frequency	Hz	2..13,2 - 10..100Hz	
Amplitude/displacement width	mm	±1	
Acceleration amplitude	g	0,7	
Max. wire gauges			
Terminal sizes according to IEC / EN 60947-5-1		A3	
Rigid and stranded wire	N. x mm²	1 x 0,5..3,3 o 2 x 2,5	
	N. x AWG	1 x 20..12 o 2 x 14	
Terminals			
Type	soldering	screw	
Thread		M3,5	
Screwdriver size		3/2	
Type	Clutch 1x2,8mm	Clutch 1x6,3mm or 2x2,8mm	
Max. No. of contacts on operators			
non-illumined / illuminated with direct supply		4 (on 2 levels)	
non-illuminated selector switches		4 (on 2 levels)	
illuminated with transformer or resistor		2 (on 2 levels)	
illuminated / non-illumined push-on / push-off		2 (on 1 level)	

APPROVALS

CE-Confirnal
CSA (Canada)
R.I.Na. Italian Naval Register - Italy (Ø16 series not included)
UR (USA)

Specifications















Colours according to IEC / EN 60204-1

Colours used for starting pushbuttons are white, grey or black, preferably white. Also green is permitted. Red is not to be used. Red must be used for emergency stop push-buttons. Colours for stop pushbuttons are black, grey or white preferably black. Also red is permitted. Green is not to be used. White, grey and black are recommended colours for start/stop pushbuttons. Not to be

used colours are red, yellow or green. White, grey and black are recommended colours for maintained pushbuttons. Red, yellow or green are not to be used. Green is the colour reserved to those functions indicating standard or safety conditions. Yellow is the colour reserved to those functions indicating dangerous or non-standard conditions. Blue is the colour reserved to all compulsory functions. Reset pushbuttons must be blue, white, grey

or black. When used as stop/switch off push-buttons, colours recommended are white, grey or black with a strong preference for black. Green is not to be used.

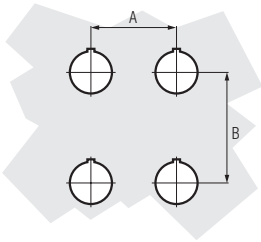
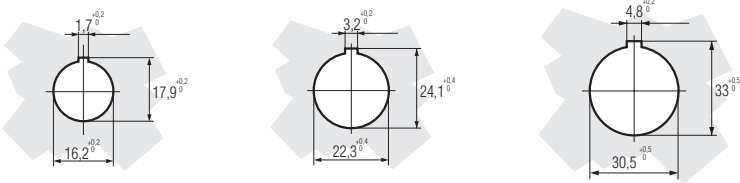
PUSHBUTTONS (NON-ILLUMINATED)		PILOT LIGHTS	
	RED <i>Emergency</i> (push in case of danger or emergency).		RED <i>Emergency</i> (dangerous conditions). Immediate action to solve one dangerous situation (es. moving the emergency stop).
	YELLOW <i>Non-standard</i> (push in case of non-standard condition). To stop one non-standard condition or re-start one interrupted automatic cycle.		YELLOW <i>Non-standard</i> (non-standard or difficult situation). Control or intervention (es. re-establishing the desired function).
	GREEN <i>Safety</i> (push in case of safety condition or to prepare one standard condition).		GREEN <i>Standard</i> (standard condition). Authorization to proceed.
	BLUE <i>Compulsory</i> (push when a condition requires one compulsory action). Reset function.		BLUE <i>Compulsory</i> (indicates that an operator intervention is needed). Obligation.
	WHITE <i>No particular meaning</i> For general start of functions excepted emergency stop ①. Start (optional) or stop.		WHITE <i>Neutral</i> (control and general information). It can be used in any case of doubt as an alternative to red, yellow, green and blue.
	GREY <i>No particular meaning</i> For general start of functions excepted emergency stop ①. Start or stop.		
	BLACK <i>No particular meaning</i> or general start of functions excepted emergency stop ①. Stop (optional) or start.		

① In case of use of an additional coding (for example body, shape, position) to identify pushbuttons actuators, the same colour white, grey or black can be employed for different functions (for example white for starting or stop actuators).

Illuminated pushbuttons

Illuminated pushbuttons actuators must be coloured according to “Pushbuttons and pilot lights” colour code. When a suitable colour is difficult to be determined, it is necessary to use white.

Mounting holes



	Ø16	Ø22	Ø30
A	25	30	50
B	25	50	65



BRETER has been established in the fifties as a manufacturer of switches for industrial applications and achieved a key specialist role in the market of electromechanical low-voltage industrial controls, especially due to its expertise on custom-designed products.

Product quality has been Breter distinctive and prestigious way to be succesful through the years.

Thanks to its development and constructive policies, today Breter's strength is a unit of 20.000 square meters, a specialists equipe, the leading position into the major international markets besides Italy and a worldwide distribution network.

The Company works in Quality Warranty to ensure top quality levels, also confirmed by products conformity to UL/CSA and IEC/EN national and international regulation and a number of approvals.

Breter faces the future with technological innovations applied to design systems, workshop, production and Quality Warranty structures.

High innovative production organizations are based on automatic assembly lines and automatic injection plastic materials presses as well as advanced gears for quality control carried out on 100% of finished products.

Engineering systems exploit CAD technology to develop new solutions and improve products quality and functionality.

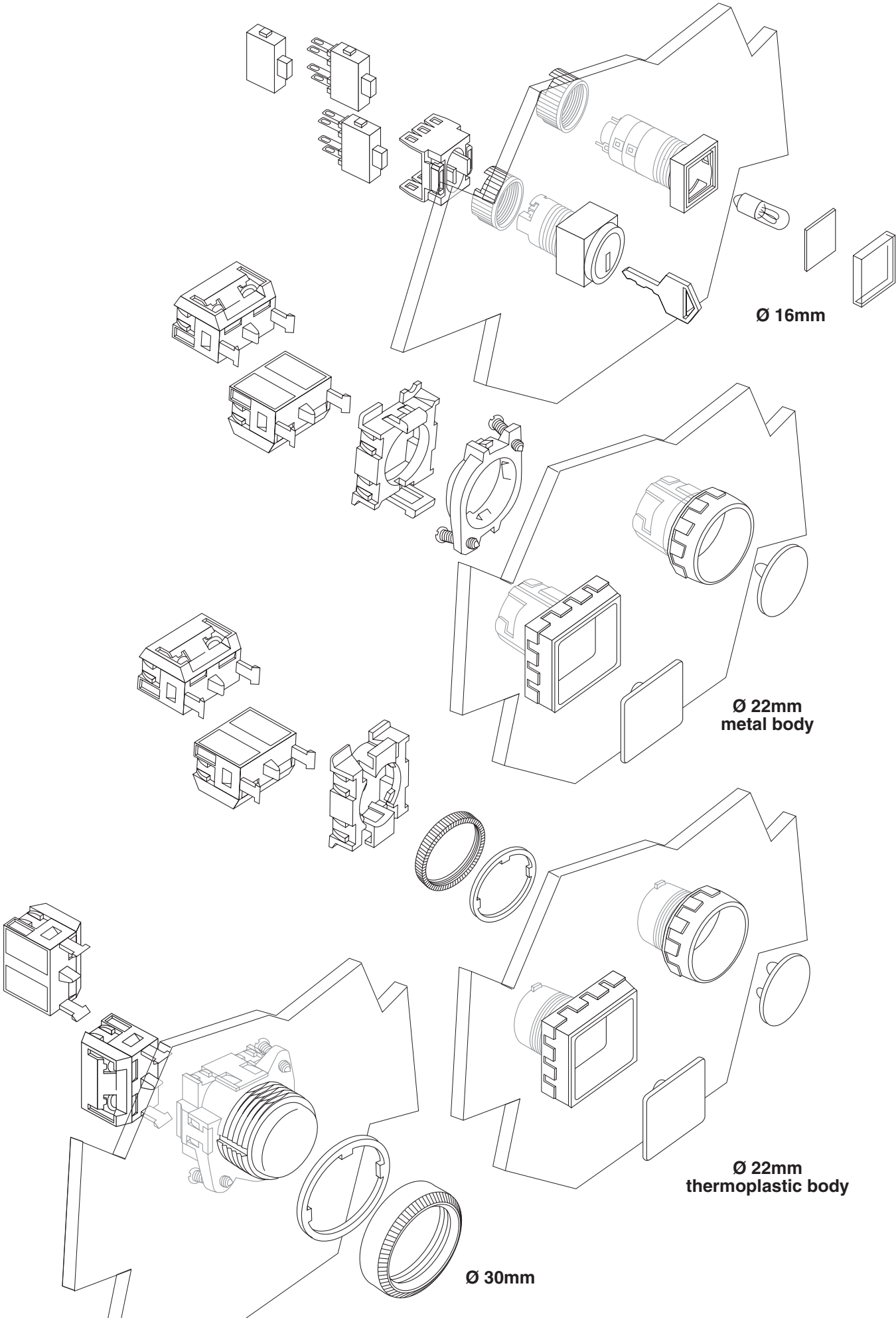
The Company Test Laboratory is equipped with gears and instruments suitable for electrical, mechanical and climatic high reliable tests both on prototypes and finished products.

Breter complete range of standard and special versions for all power and control functions in electrical and electronic applications is typically used by OEM, panel builders and installers in the following fields: tools and industrial machines, automation, transports, off-shore, lifting equipment, energy production and distribution.

The whole Breter range covers more than 3 thousands products out of the catalog in addition to an even higher number of custom-designed products; cam switches and switch disconnectors from 10A up to 630A and a complete line of push buttons, selector switches and pilot lights Ø 16 - 22 - 30 mm with plenty of choices as far as functions and outward solutions.



meet us in our new web site:
www.breter.it





***industrial
controls***



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Control Switches RM 2004/E