



INDICATOR



PUSHBUTTON



E-STOP



MUSHROOM



KEYLOCK



SELECTOR



BUZZER

Choose one component from each of the coloured sections to assemble a complete switch.

Product Profile

The Series 04 is a high quality switch range that includes pushbuttons, indicators, selectors, mushroom headed switches, key switches, and Emergency-stops.

Options include self cleaning, slow-make and snap-action switching elements.

Technical data see page 25

- IP65 Protection
- Switch Rating:
Maximum Voltage, 500VAC
Maximum Thermal Current, Ith = 10A
230VAC/6A, 24VDC/10A
- Raised Mounting into 22.5 mm cut out
- Flush Mounting into 30.5 mm cut out
- Illumination using Ba9s Lamps or LED's
- All standard lenses are transparent with translucent diffuser
- Screw terminal or plug-in connections

Indicator





Colour	Part No.	Colour	Part No.
Red	704.000.2	Red	704.006.218
Yellow	704.000.4	Yellow	704.006.418
Green	704.000.5	Green	704.006.518
Blue	704.000.6	Blue	704.006.618
Clear	704.000.7	Clear	704.006.718

For complete switch also order

For complete switch also order

Indicator







Colour	Part No.	Colour	Part No., Momentary	Part No., Maintained	Colour	Part No., Momentary	Part No., Maintained
Red	704.202.208	Red	704.010.2	704.040.2	Red	704.012.2	704.042.2
Yellow	704.202.408	Yellow	704.010.4	704.040.4	Yellow	704.012.4	704.042.4
Green	704.202.508	Green	704.010.5	704.040.5	Green	704.012.5	704.042.5
Blue	704.202.608	Blue	704.010.6	704.040.6	Blue	704.012.6	704.042.6
Clear	704.202.708	Clear	704.010.7	704.040.7	Clear	704.012.7	704.042.7
		Black	704.010.0	704.040.0	Black	704.012.0	704.042.0

For complete switch also order

For complete switch also order

For complete switch also order

Choose one component from each of the coloured sections to assemble a complete switch.
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Non-Illuminated pushbutton



Non-Illuminated flush mount pushbutton,
aluminium bezel, 30.5 mm mounting



Non-Illuminated flush mount pushbutton,
silver plastic bezel, 30x30 mm mounting

Illuminated pushbutton



Illuminated raised pushbutton,
grey plastic bezel, 22.5 mm mounting

Colour	Part No., Momentary	Part No., Maintained
Red	704.012.218	704.042.218
Yellow	704.012.418	704.042.418
Green	704.012.518	704.042.518
Blue	704.012.618	704.042.618
Clear	704.012.718	704.042.718
Black	704.012.018	704.042.018

Colour	Part No., Momentary	Part No., Maintained
Red	704.210.208	704.240.208
Yellow	704.210.408	704.240.408
Green	704.210.508	704.240.508
Blue	704.210.608	704.240.608
Clear	704.210.708	704.240.708
Black	704.210.008	704.240.008

Colour	Part No., Momentary	Part No., Maintained
Red	704.030.2	704.060.2
Yellow	704.030.4	704.060.4
Green	704.030.5	704.060.5
Blue	704.030.6	704.060.6
Clear	704.030.7	704.060.7

For complete switch also order **A**

For complete switch also order **A**

For complete switch also order **A**

Illuminated pushbutton



Illuminated raised pushbutton,
aluminium bezel, 22.5 mm mounting



Illuminated flush mount pushbutton,
aluminium bezel, 30.5 mm mounting



Illuminated flush mount pushbutton,
silver plastic bezel, 30x30 mm mounting

Colour	Part No., Momentary	Part No., Maintained
Red	704.032.2	704.062.2
Yellow	704.032.4	704.062.4
Green	704.032.5	704.062.5
Blue	704.032.6	704.062.6
Clear	704.032.7	704.062.7

Colour	Part No., Momentary	Part No., Maintained
Red	704.032.218	704.062.218
Yellow	704.032.418	704.062.418
Green	704.032.518	704.062.518
Blue	704.032.618	704.062.618
Clear	704.032.718	704.062.718

Colour	Part No., Momentary	Part No., Maintained
Red	704.230.208	704.260.208
Yellow	704.230.408	704.260.408
Green	704.230.508	704.260.508
Blue	704.230.608	704.260.608
Clear	704.230.708	704.260.708

For complete switch also order **A**

For complete switch also order **A**

For complete switch also order **A**

Series 04

22.5mm 30.5mm IP65 10A 500VAC



Choose one component from each of the coloured sections to assemble a complete switch.

 Emergency-stop switch



Emergency-stop, twist release, 37 mm diameter, foolproof to EN 60947-5-1 and DIN EN ISO 13850

Part No.
704.064.2
Please use slow make switch element only
Part No. 704.91X

For complete switch also order **A**



Emergency-stop, key release, 37 mm diameter, foolproof to EN 60947-5-1 and DIN EN ISO 13850

	Part No.
	704.066.2
	Please use slow make switch element only
	Part No. 704.91X

For complete switch also order **A**

Mushroom head pushbutton



Mushroom head pushbutton, plastic bezel and aluminium bezel, 22.5 mm mounting, function momentary

Colour	Part No., Plastic	Part No., Aluminium
 Red	704.070.2	704.071.2
 Yellow	704.070.4	704.071.4
 Green	704.070.5	704.071.5
 Black	704.070.0	704.071.0

For complete switch also order **A**

 Mushroom head stop switch



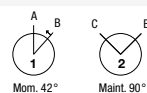
Stop switch, twist release, mushroom head, 40 mm diameter, 22.5 mm mounting

[illegible]

For complete switch also order **A**

 Keylock switch

Keylock switch 2 position,
raised, 22.5 mm mounting

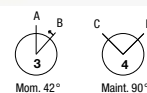


Graphic	Part No.	Function	Key out
1	704.123.0	Momentary	A
2	704.121.0	Maintained	C
2	704.122.0	Maintained	C + B

For complete switch also order **A**



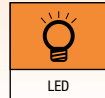
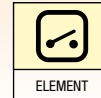
Keylock switch 2 position,
flush mount,
30.5 mm mounting



Graphic	Part No.	Function	Key out
3	704.123.018	Momentary	A
4	704.121.018	Maintained	C
4	704.122.018	Maintained	C + B

For complete switch also order **A**

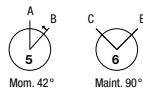
Choose one component from each of the coloured sections to assemble a complete switch.
For other options or further information please contact your local sales office.



Keylock switch



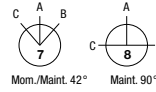
Keylock switch 2 position,
flush mount, 30x30 mm
mounting



Graphic	Part No.	Function	Key out
5	704.343.008	Momentary	A
6	704.341.008	Maintained	C
6	704.342.008	Maintained	C + B



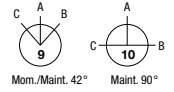
Keylock switch 3 position,
raised, 22.5 mm mounting



Graphic	Part No.	Function	Key out
7	704.115.0	Momentary	A
7	704.114.0	Maintained	A
7	704.116.0	Maintained	C + B
8	704.113.0	Maintained	C + A + B



Keylock switch
3 position, flush mount,
30.5 mm mounting



Graphic	Part No.	Function	Key out
10	704.113.018	Maintained	C + A + B
9	704.115.018	Momentary	A
9	704.114.018	Maintained	A
9	704.116.018	Maintained	C + B

For complete switch also order **A**

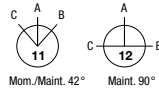
For complete switch also order **A**

For complete switch also order **A**

Keylock switch



Keylock switch
3 position, flush mount,
30x30 mm mounting

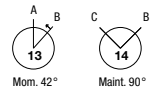


Graphic	Part No.	Function	Key out
11	704.335.008	Momentary	A
11	704.334.008	Maintained	A
11	704.336.008	Maintained	C + B
12	704.333.008	Maintained	C + A + B

Selector switch



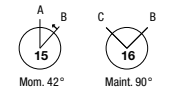
Selector switch short
lever 2 position, raised,
22.5 mm mounting



Graphic	Part No.	Function	Bezel
13	704.412.0	Momentary	Grey plastic
13	704.413.0	Momentary	Aluminium
14	704.410.0	Maintained	Grey plastic
14	704.411.0	Maintained	Aluminium



Selector switch short lever
2 position, flush mount,
30.5 mm mounting



Graphic	Part No.	Function	Bezel
15	704.413.018	Momentary	Aluminium
16	704.411.018	Maintained	Aluminium

For complete switch also order **A**

For complete switch also order **A**

For complete switch also order **A**

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Selector switch

Selector switch short lever
2 position, flush mount,
30x30 mm mounting

Graphic	Part No.	Function	Bezel
17	704.512.008	Momentary	Silver plastic
18	704.510.008	Maintained	Silver plastic

Selector switch short lever
3 position, raised,
22.5 mm mounting

Graphic	Part No.	Function	Bezel
19	704.404.0	Momentary	Grey plastic
19	704.405.0	Momentary	Aluminium
19	704.402.0	Maintained	Grey plastic
19	704.403.0	Maintained	Aluminium

Selector switch short lever
3 position, flush mount,
30.5 mm mounting

Graphic	Part No.	Function	Bezel
20	704.405.018	Momentary	Aluminium
20	704.403.018	Maintained	Aluminium

For complete switch also order **A**

For complete switch also order **A**

For complete switch also order **A**

Selector switch

Selector switch short lever
3 position, flush mount,
30x30 mm mounting

Graphic	Part No.	Function	Bezel
21	704.504.008	Momentary	Silver plastic
21	704.502.008	Maintained	Silver plastic

Selector switch long lever
2 position, raised,
22.5 mm mounting

Graphic	Part No.	Function	Bezel
22	704.102.0	Momentary	Grey plastic
22	704.103.0	Momentary	Aluminium
23	704.100.0	Maintained	Grey plastic
23	704.101.0	Maintained	Aluminium

Selector switch long lever
2 position, flush mount,
30.5 mm mounting

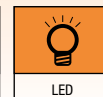
Graphic	Part No.	Function	Bezel
24	704.103.018	Momentary	Aluminium
25	704.101.018	Maintained	Aluminium

For complete switch also order **A**

For complete switch also order **A**

For complete switch also order **A**

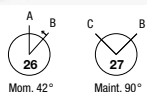
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For other options or further information please contact your local sales office.



Selector switch



Selector switch long lever
2 position, flush mount,
30x30 mm mounting



Graphic	Part No.	Function	Bezel
26	704.302.008	Momentary	Silver plastic
27	704.300.008	Maintained	Silver plastic



Selector switch long lever
3 position, raised,
22.5 mm mounting



Graphic	Part No.	Function	Bezel
28	704.094.0	Momentary	Grey plastic
28	704.095.0	Momentary	Aluminium
28	704.092.0	Maintained	Grey plastic
28	704.093.0	Maintained	Aluminium



Selector switch long lever
3 position, flush mount,
30.5 mm mounting



Graphic	Part No.	Function	Bezel
29	704.095.018	Momentary	Aluminium
29	704.093.018	Maintained	Aluminium

For complete switch also order **A**

For complete switch also order **A**

For complete switch also order **A**

Selector switch



Selector switch long lever
3 position, flush mount,
30x30 mm mounting



Graphic	Part No.	Function	Bezel
30	704.294.008	Momentary	Black plastic
30	704.292.008	Maintained	Black plastic

Buzzer



Buzzer, raised, 22.5 mm mounting, IP65, 24 VDC, 95dB ±8
at a distance of 0.1m

Part No.	Front finish
14-810.002	Black plastic
14-810.902	Nickel-plated brass



Buzzer, flush mount, 30.5 mm mounting, IP40,
24 VDC, 95dB ±8 at a distance of 0.1m

Part No.	Front finish
14-810.910	Black aluminium
14-810.918	Natural aluminium

For complete switch also order **A**



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BUZZER

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Switching element

																																																																				
Switching element, screw terminal, snap-action with silver self-cleaning contacts	Switching element, plug-in terminal, 6.3 mm, snap-action with self-cleaning silver contacts	Switching element, screw terminal, snap-action with silver self-cleaning contacts																																																																		
<table><tr><th>Part No.</th><th>Contact type</th></tr><tr><td>704.900.1</td><td>1NO</td></tr><tr><td>704.900.2</td><td>1NC</td></tr><tr><td>704.900.3</td><td>2NO</td></tr><tr><td>704.900.4</td><td>2NC</td></tr><tr><td>704.900.5</td><td>1NO/1NC</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td>Other contact materials and terminals available.</td><td></td></tr><tr><td>Please contact us.</td><td></td></tr></table>	Part No.	Contact type	704.900.1	1NO	704.900.2	1NC	704.900.3	2NO	704.900.4	2NC	704.900.5	1NO/1NC							Other contact materials and terminals available.		Please contact us.		<table><tr><th>Part No.</th><th>Contact type</th></tr><tr><td>704.905.1</td><td>1NO</td></tr><tr><td>704.905.2</td><td>1NC</td></tr><tr><td>704.905.3</td><td>2NO</td></tr><tr><td>704.905.4</td><td>2NC</td></tr><tr><td>704.905.5</td><td>1NO/1NC</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td>Other contact materials and terminals available.</td><td></td></tr><tr><td>Please contact us.</td><td></td></tr></table>	Part No.	Contact type	704.905.1	1NO	704.905.2	1NC	704.905.3	2NO	704.905.4	2NC	704.905.5	1NO/1NC							Other contact materials and terminals available.		Please contact us.		<table><tr><th>Part No.</th><th>Contact type</th></tr><tr><td>704.910.1</td><td>1NO</td></tr><tr><td>704.910.2</td><td>1NC</td></tr><tr><td>704.910.3</td><td>2NO</td></tr><tr><td>704.910.4</td><td>2NC</td></tr><tr><td>704.910.5</td><td>1NO/1NC</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td>Other contact materials and terminals available.</td><td></td></tr><tr><td>Please contact us.</td><td></td></tr></table>	Part No.	Contact type	704.910.1	1NO	704.910.2	1NC	704.910.3	2NO	704.910.4	2NC	704.910.5	1NO/1NC							Other contact materials and terminals available.		Please contact us.	
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Switching element



Switching element, plug-in terminal, 6.3 mm,
slow-make with forced opening silver contacts

LED



LED, Ba9s, single chip, 6 Volt and 12 Volt



LED, Ba9s, single chip, 24 Volt and 28 Volt

Part No.	Contact type	Colour	Part No.	Voltage	Colour	Part No.	Voltage
704.915.1	1NO	Red	10-2506.1082	6VDC, 10/17mA	Red	10-2512.1142	24VAC/DC, 15mA
704.915.2	1NC	Yellow	10-2506.1084	6VDC, 10/17mA	Yellow	10-2512.1144	24VAC/DC, 15mA
704.915.3	2NO	Green	10-2506.1085	6VDC, 10/17mA	Green	10-2512.1145	24VAC/DC, 15mA
704.915.4	2NC	Blue	10-2506.1086	6VDC, 10/17mA	Blue	10-2512.1146	24VAC/DC, 15mA
704.915.5	1NO/1NC	White	10-2506.1089	6VDC, 10/17mA	White	10-2512.1149	24VAC/DC, 15mA
		Red	10-2509.1142	12VAC/DC, 15mA	Red	10-2513.1142	28VAC/DC, 15mA
		Yellow	10-2509.1144	12VAC/DC, 15mA	Yellow	10-2513.1144	28VAC/DC, 15mA
		Green	10-2509.1145	12VAC/DC, 15mA	Green	10-2513.1145	28VAC/DC, 15mA
Other contact materials and terminals available.		Blue	10-2509.1146	12VAC/DC, 15mA	Blue	10-2513.1146	28VAC/DC, 15mA
Please contact us.		White	10-2509.1149	12VAC/DC, 15mA	White	10-2513.1149	28VAC/DC, 15mA

Choose one component from each of the coloured sections to assemble a complete switch.
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LED

A Accessories



LED, Ba9s, single chip, 48 Volt



LED, Ba9s, single chip, 130 Volt and 230 Volt



Lamp/LED block, screw terminal

Colour	Part No.	Voltage	Colour	Part No.	Voltage	Part No.
Red	10-2519.1052	48VAC/DC, 6mA	Red	10-2H24.2052	130VAC / 5mA	704.950.0*
Yellow	10-2519.1054	48VAC/DC, 6mA	Yellow	10-2H24.2054	130VAC / 5mA	
Green	10-2519.1055	48VAC/DC, 6mA	Green	10-2H24.2055	130VAC / 5mA	
Blue	10-2519.1056	48VAC/DC, 6mA	Blue	10-2H24.2056	130VAC / 5mA	
White	10-2519.1059	48VAC/DC, 6mA	White	10-2H24.2059	130VAC / 5mA	
			Red	10-2H24.2042	230VAC / 3mA	
			Yellow	10-2H24.2044	230VAC / 3mA	
			Green	10-2H24.2045	230VAC / 3mA	
			Blue	10-2H24.2046	230VAC / 3mA	
			White	10-2H24.2049	230VAC / 3mA	
						* Other terminals available. Please contact us.

A Accessories



Lamp/LED block, plug-in terminal, 6.3 mm



Lens cap, round, transparent, plastic for raised and flush indicators with bezel and pushbutton actuators



Lens cap raised, round, transparent, plastic for raised and flush mount pushbutton actuators

Part No.	Colour	Part No.	Colour	Part No.
704.950.1*	Red	704.602.2	Red	704.611.2
	Yellow	704.602.4	Yellow	704.611.4
	Green	704.602.5	Green	704.611.5
	Blue	704.602.6	Blue	704.611.6
	Clear	704.602.7	Clear	704.611.7
		For complete lens also order diffuser	For complete lens also order diffuser	
* Other terminals available. Please contact us.		704.609.9 (see page 24)	704.610.9 (see page 24)	

Series 04

22.5mm 30.5mm IP65 10A 500VAC



Choose one component from each of the coloured sections to assemble a complete switch.

A Accessories



Lens cap, round, aluminium anodised for raised and flush mount pushbutton actuators



Protective cover, raised pushbutton



Protective front ring with silicon membrane for raised or flush mount pushbutton

Colour	Part No.	Comment	Part No.		Part No.	Size
 Red	704.601.2		704.925.0	1	704.600.3	29 mm Ø for raised pushbutton
 Yellow	704.601.4			2	704.955.3	35 mm Ø for flush mount pushbutton
 Blue	704.601.6					
 Silver	704.601.8					
 Silver	704.601.81	Illuminated central dot				
 Black	704.601.0					
 Black	704.601.01	Illuminated central dot				
 Silver	704.601.9	Stainless steel				

A Accessories

Emergency-stop protective shroud, yellow painted aluminium with 22.5 mm mounting hole



Emergency-stop switch label, 60 mm Ø



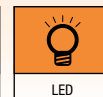
Emergency-stop switch enclosure
94 mm (w) x 94 mm (h) x 81 mm (d), anti twist hole. Cable
gland M20, IP66

Part No.	Part No.	Markings		Part No.
704.927.4	704.963.5	NOT-AUS	1	704.945.0
	704.963.6	EMERGENCY-STOP	2	704.945.6
	704.963.7	ARRET D'URGENCE		
	704.963.8	NOT-HALT		

Choose one component from each of the coloured sections to assemble a complete switch.
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ELEMENT



LED



ACCESSORIES

A Accessories



Emergency-stop switch enclosure with 22.5 mm Ø mounting hole, 65 mm (w) x 65 mm (h) x 81 mm (d), anti twist hole. Cable gland M20, IP66

	Part No.
1	704.945.7
2	704.945.6



Emergency-stop switch enclosure, with 22.5 mm Ø mounting hole, 94 mm (w) x 65 mm (h) x 81 mm (d), anti twist hole. Cable gland M20, IP66

	Part No.
1	704.945.8
2	704.945.6



Blanking plate

Part No.	Mounting hole
704.960.7	22.5 mm Ø
704.964.8	30.5 mm Ø
704.964.9	30x30 mm

A Accessories



Flush mount bezel for 30.5 Ø mounting

	Part No.	Product description
1	704.955.0	Aluminium, black anodised
2	704.955.1	Aluminium, natural anodised
3	704.955.9	Stainless steel
4	704.955.3	Alu, natural anodised with seal



Lens remover for round pushbuttons and indicators. LED and lamp remover for round and square pushbuttons and indicators

	Part No.
	700.006.0



Lens remover for square pushbuttons and indicators

	Part No.
	98-968

Series 04

22.5mm 30.5mm IP65 10A 500VAC



INDICATOR



PUSHBUTTON



E-STOP



MUSHROOM



KEYLOCK



SELECTOR



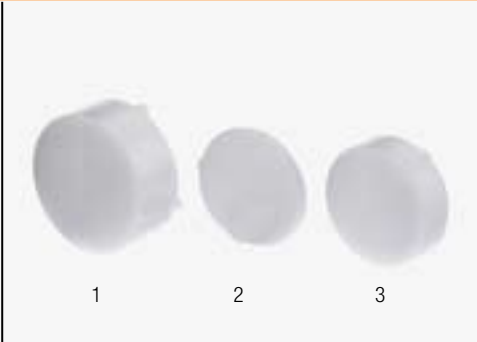
BUZZER

Choose one component from each of the coloured sections to assemble a complete switch.

A Accessories



Mounting flange



1 2 3

Diffuser for raised indicator, diffuser for flat lens indicator and pushbutton, diffuser for raised pushbutton



1 2

Marking plate selfadhesive, aluminium finish or black, for raised and flush mount push buttons

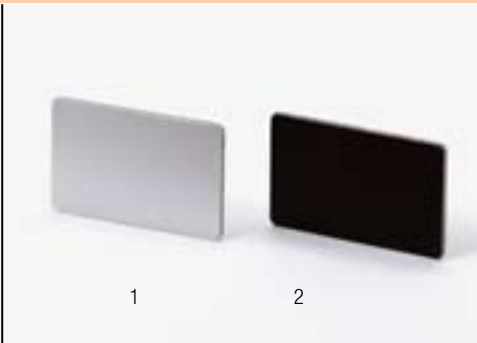
Part No.	Material	Image	Part No.	Product description	Image	Part No.	Size	Colour
704.960.5	Metal	1	704.608.9	Diffuser for raised indicator	1	704.968.2	22.5 mm Ø	Black
704.950.5	Plastic	2	704.609.9	Diffuser for flat lens	2	704.968.3	30.5 mm Ø	Black
		3	704.610.9	Diffuser for raised illum. pushbutton				

A Accessories



1 2

Engraving Label for Marking plate, selfadhesive, natural anodised or black aluminium



1 2

Engraving Label for flat square products, selfadhesive natural anodised or black aluminium

Image	Part No.	Size	Colour	Image	Part No.	Size	Colour
1	704.968.0	23.5 x 14.5 mm	Aluminium	1	704.968.4	35 x 18 mm	Aluminium
2	704.968.1	23.5 x 14.5 mm	Black	2	704.968.5	35 x 18 mm	Black

Snap-action switching element

Switching system

The double-break, snap-action switching element is equipped with one or two independent contact systems, acting as normally open or normally closed contact. The snap-action switching element is fitted with self-cleaning contacts.

Up to 3 switching elements can be snapped to each actuator.

Snap-action switching elements are not permissible for emergency-stop pushbuttons!

Material

Material of contact

Hard Silver, Gold/Silver, Silver/Palladium (for aggressive atmospheres)

Switch housing

Polycarbonate (PC)

Mechanical characteristics

Terminals

Screw terminals

Plug-in terminals 6.3x0.8mm

max. wire cross-section 2x2.5mm²

max. wire cross-section of stranded cable 2x1.5mm²

For switches with plug-in terminals it is necessary to provide insulation sleeves and to maintain a spacing of 65 mm between rows (mounting dimensions)

Tightening torque

Screws at the mounting flange max. 25Ncm

Screws at switching element max. 50Ncm

Actuating force

1 Normally closed 1.9N

1 Normally open 2N

Actuating travel

5.8mm ±0.2mm

Rebound time

≤3ms

Mechanical lifetime

(with 1 switching element)

Pushbutton, maintained action	1.5 million	Cycles of operation
Pushbutton momentary action	3 million	Cycles of operation
Selector switch maintained action	1.25 million	Cycles of operation
Selector switch momentary action	2.5 million	Cycles of operation
Keylock switch maintained action	25 000	Cycles of operation
Keylock switch momentary action	50 000	Cycles of operation

Electrical characteristics

Standards

The switches comply with the „Standards for low-voltage switching devices“ EN IEC 60947-5-1

Rated Insulation Voltage Ui

500 VAC/600 VDC, as per EN IEC 60947-5-1

Contact resistance

New state ≤50 mΩ as per DIN IEC 60512-2-4

Conventional free air thermal current Ith

10 A, as per EN IEC 60947-5-1

the maximum current in continuous operation and at ambient temperature must not exceed the quoted maximum values.

Isolation resistance

≥10 MΩ between open contacts at 500 VDC, as per DIN IEC 60512-2-10

Switch rating

At switch rating AC for Gold/Silver, Silver/Palladium and Hard Silver contacts service category AC-15, as per EN IEC 60947-5-1 (cosφ 0.3)

Voltage	230 VAC	400 VAC	500 VAC
Current	6 A	4 A	2.5 A

At switch rating DC for Gold-, Silver- and Hard Silver contacts service category DC-13, as per EN IEC 60947-5-1

Voltage	24 VDC	60 VDC	110 VDC
Current	10 A	3 A	1 A

Recommended minimum operational data

Gold/Silver contacts:

Voltage	5 VDC	24 VDC	110 VDC
Current	15 mA	5 mA	2 mA

Hard Silver contacts:

Voltage	24 VDC	110 VDC
Current	50 mA	10 mA

Protection class

Indicators and switches, fit for mounting into devices with protection class II

Environmental conditions

Storage temperature

–40 °C ... +85 °C

Operating temperature

–25 °C ... +55 °C

Shock resistance

(single impacts, semi-sinusoidal)

300 m/s²puls width 11 ms, as per EN IEC 60068-2-27

Vibration resistance

(sinusoidal)

100 m/s² at 10 Hz ... 500 Hz, amplitude 0.75 mm, as per EN IEC 60068-2-6

Approvals

Approbations

CB (IEC 60947)

CCC

CSA

Germanischer Lloyd

GOST

SEV

UL

Declaration of conformity

CE

NF F16-102

Slow-make switching element

Switching system

The double-break, slow-make switching element is equipped with one or two independent contact systems, acting as normally open or normally closed contact. The normally closed contact has forced opening.
Slow-make contacts with forced action are ideal for high switch ratings.
Up to 3 switching elements can be snapped to each actuator.
For the emergency-stop pushbutton use the slow-make switching element (max. 2).

Material

Material of contact

Hard Silver, Gold/Silver, Silver/Palladium (for aggressive atmospheres)

Switch housing

Polycarbonate (PC)

Mechanical characteristics

Terminals

Screw terminals
Plug-in terminals 6.3x0.8mm
max. wire cross-section 2x2.5mm²
max. wire cross-section of stranded cable 2x1.5mm²
For switches with plug-in terminals it is necessary to provide insulation sleeves and to maintain a spacing of 65mm between rows (mounting dimensions)

Tightening torque

Screws at the mounting flange max. 25Ncm
Screws at switching element max. 50Ncm

Actuating force

1 Normally closed 2N
1 Normally open 3.1N

Actuating travel

5.8mm ±0.2mm

Rebound time

≤1ms

Mechanical lifetime

(with 1 switching element)		
Pushbutton, maintained action	1.5 million	Cycles of operation
Pushbutton momentary action	3 million	Cycles of operation
Selector switch maintained action	1.25 million	Cycles of operation
Selector switch momentary action	2.5 million	Cycles of operation
Emergency-stop switch	50 000	Cycles of operation
Keylock switch maintained action	25 000	Cycles of operation
Keylock switch momentary action	50 000	Cycles of operation

Electrical characteristics

Standards

The switches comply with the „Standards for low-voltage switching devices“ EN IEC 60947-5-1

Rated Insulation Voltage Ui

500VAC/600VDC, as per EN IEC 60947-5-1

Contact resistance

New state ≤50mΩ as per DIN IEC 60512-2-4

Isolation resistance

≥10MΩ between open contacts at 500VDC, as per DIN IEC 60512-2-10

Conventional free air thermal current Ith

10A, as per EN IEC 60947-5-1
the maximum current in continuous operation and at ambient temperature must not exceed the quoted maximum values.

Switch rating

At switch rating AC for Gold/Silver, Silver/Palladium and Hard Silver contacts service category AC-15, as per EN IEC 60947-5-1 (cosφ 0.3)

Voltage	230VAC	400VAC	500VAC
Current	7A	5A	4A

At switch rating DC for Gold-, Silver- and Hard Silver contacts service category DC-13, as per EN IEC 60947-5-1

Voltage	24VDC	60VDC	110VDC	250VDC
Current	10A	5A	2.5A	0.6A

Recommended minimum operational data

Gold/Silver contacts:		
Voltage	24VDC	110VDC
Current	10mA	2mA

Hard Silver contacts:		
Voltage	24VDC	110VDC
Current	50mA	10mA

Protection class

Indicators and switches, fit for mounting into devices with protection class II

Environmental conditions

Storage temperature

−40°C ... +85°C

Operating temperature

−40°C ... +55°C

Shock resistance

(single impacts, semi-sinusoidal)
300m/s² puls width 11ms, as per EN IEC 60068-2-27

Vibration resistance

(sinusoidal)
100m/s² at 10Hz ... 500Hz, amplitude 0.75mm, as per EN IEC 60068-2-6

Approvals

Approbations

CB (IEC 60947)
CCC
CSA
Germanischer Lloyd
GOST
SEV
UL

Declaration of conformity

CE
NF F16-102

Buzzer

Buzzer system

System

Piezo disc

Material

Alarm buzzer case

Polyamide

Front cap

Plastic Polyamide

Metal Nickel-plated brass (sea-water proof)

Mechanical characteristics

Terminals

Plug-in terminal 2.8x0.5mm

Electrical characteristics

Frequency (tone)

approx. 2.8 kHz continuous tone only

Sound pressure

95 db (A) ± 8 dB at a distance of 0.1 m

Operation Voltage/Current

Operation Voltage 24 VDC $\pm 10\%$

Operation Current ≤ 25 mA

Environmental conditions

Storage temperature

$-35^{\circ}\text{C} \dots +85^{\circ}\text{C}$

Operating temperature

$-25^{\circ}\text{C} \dots +55^{\circ}\text{C}$

Protection degree

as per EN IEC 60529, frontside

IP40, devices flush mounting

IP65, devices raised mounting

Approvals

Declaration of conformity

CE

NF F16-102

Actuator

Material

Front ring

Polyamide, Aluminium or Stainless steel

Mounting flange

Polyethylene terephthalate

Actuator housing

Polycarbonate, Polyamide

Mechanical characteristics

Actuating force

Mounting style square flush 6.2 N

other Mounting styles 8 N

Actuating travel

5.8 mm ± 0.2 mm

Mechanical lifetime

Pushbutton	≤ 3 million	Cycles of operation
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Selector switch	≤ 2.5 million	Cycles of operation
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Stop pushbutton	$\leq 50\,000$	Cycles of operation
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Fool proofed E-stop	≥ 6050	Cycles of operation
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Keylock switch	$\leq 50\,000$	Cycles of operation
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Electrical characteristics

Standards

The switches comply with the „Rules for low-voltage switching devices“ EN IEC 60947-5-1

Environmental conditions

Storage temperature

$-40^{\circ}\text{C} \dots +85^{\circ}\text{C}$

Operating temperature

$-25^{\circ}\text{C} \dots +55^{\circ}\text{C}$

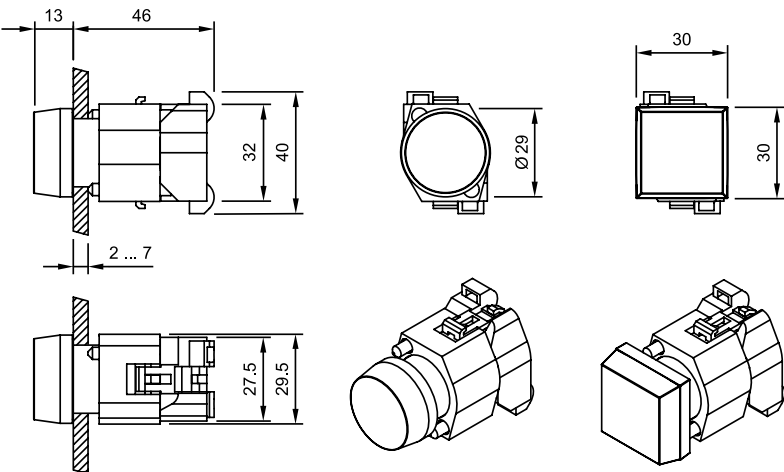
Protection degree

as per EN IEC 60529

Frontside IP65

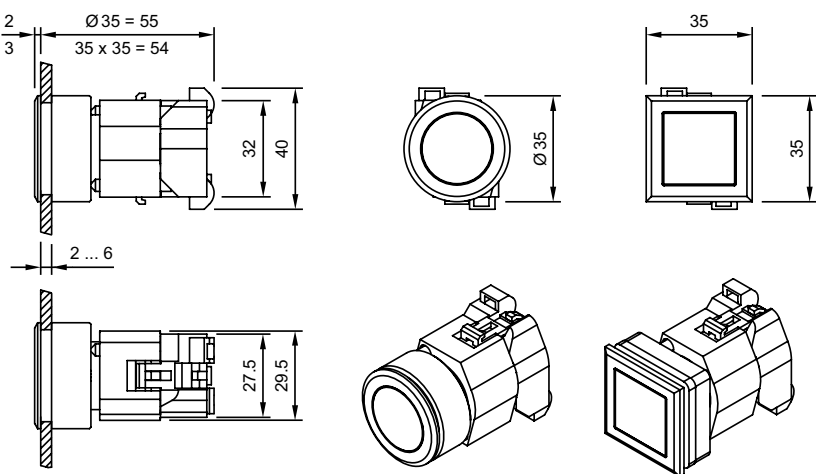
04 Indicator

Raised



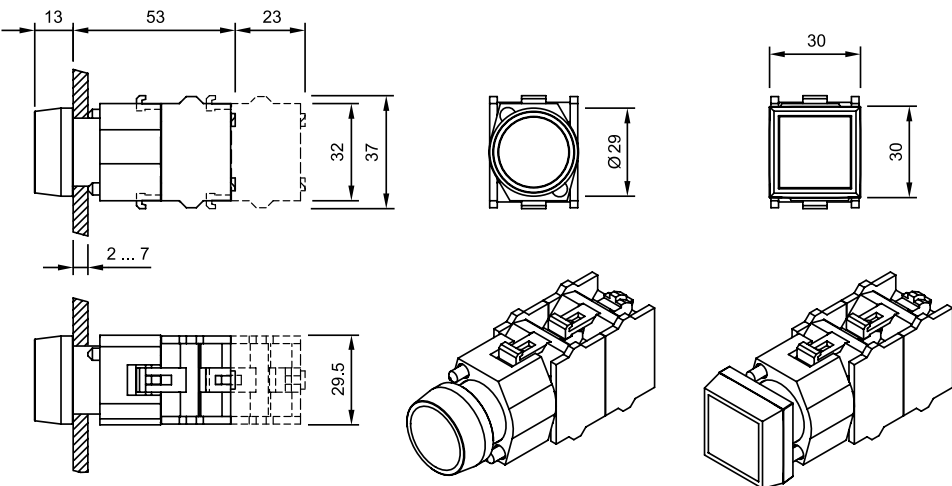
04 Indicator

Flush



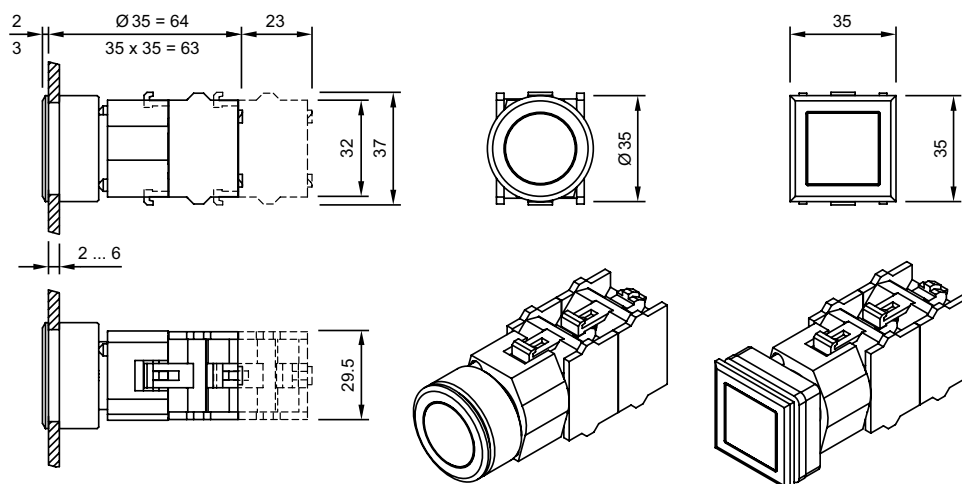
04 Non-Illuminated Pushbutton

Raised



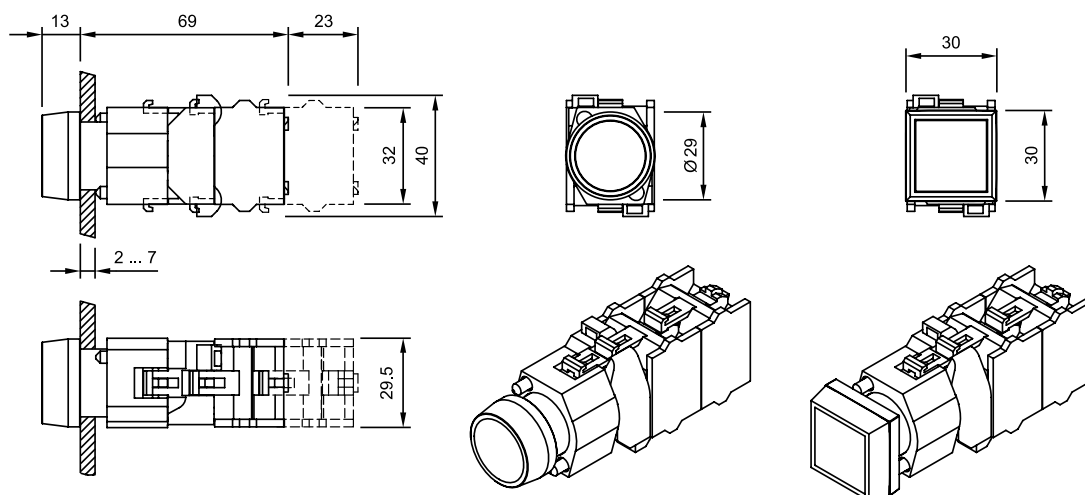
04 Non-Illuminated Pushbutton

Flush



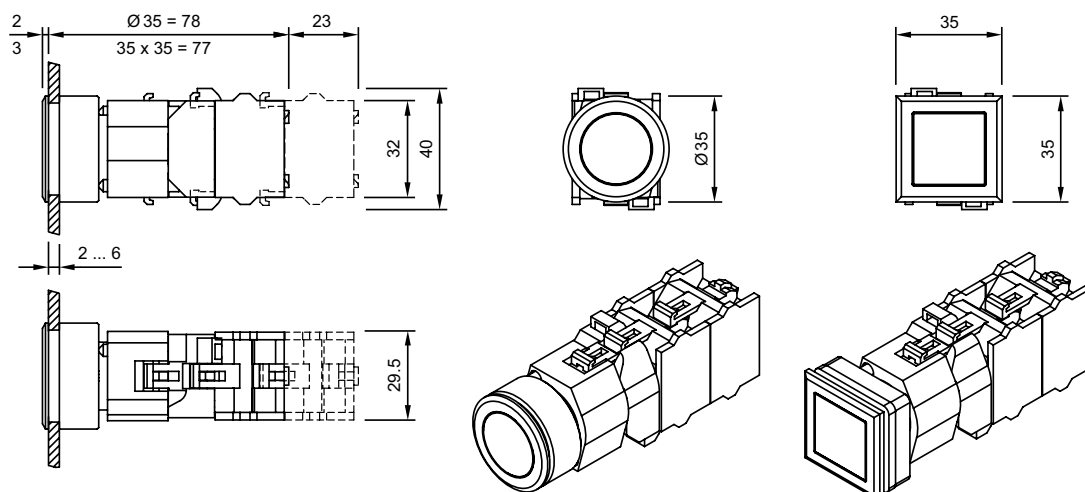
04 Illuminated Pushbutton

Raised



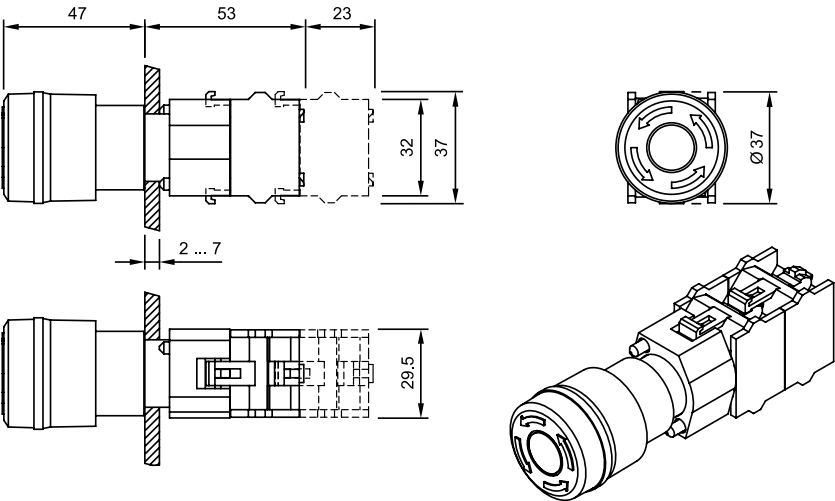
04 Illuminated Pushbutton

Flush



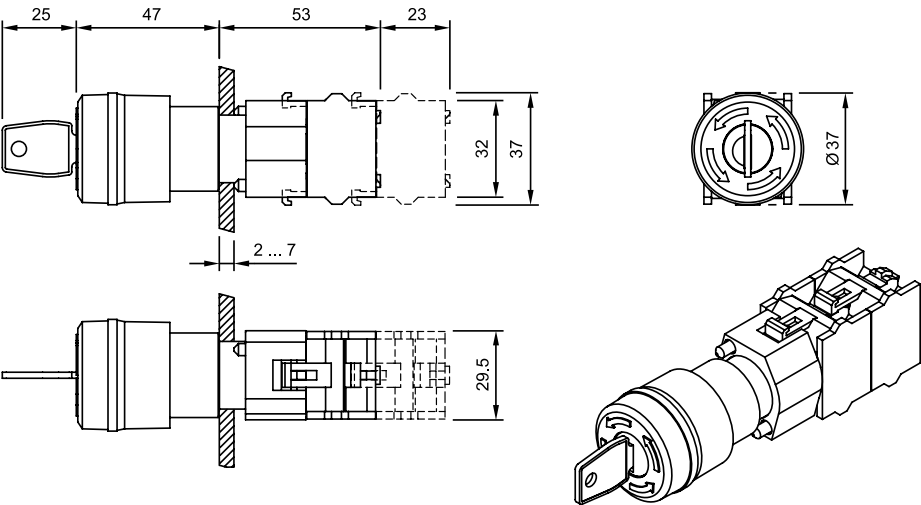
04 Emergency-stop switch

ISO 13850, Twist to release

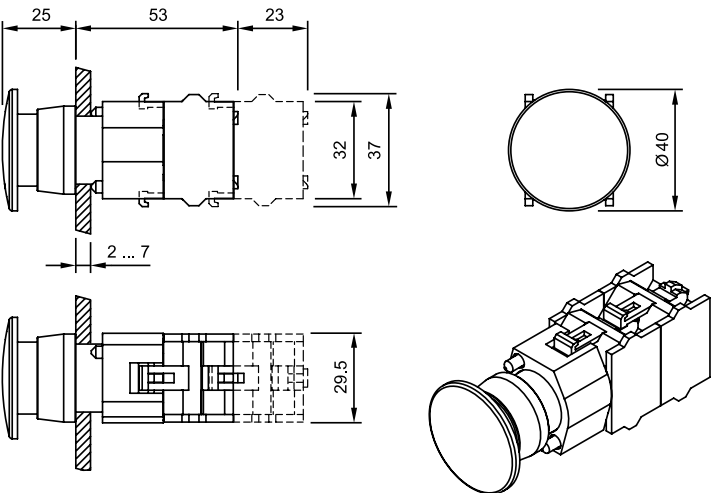


04 Emergency-stop switch

ISO 13850, Key to release

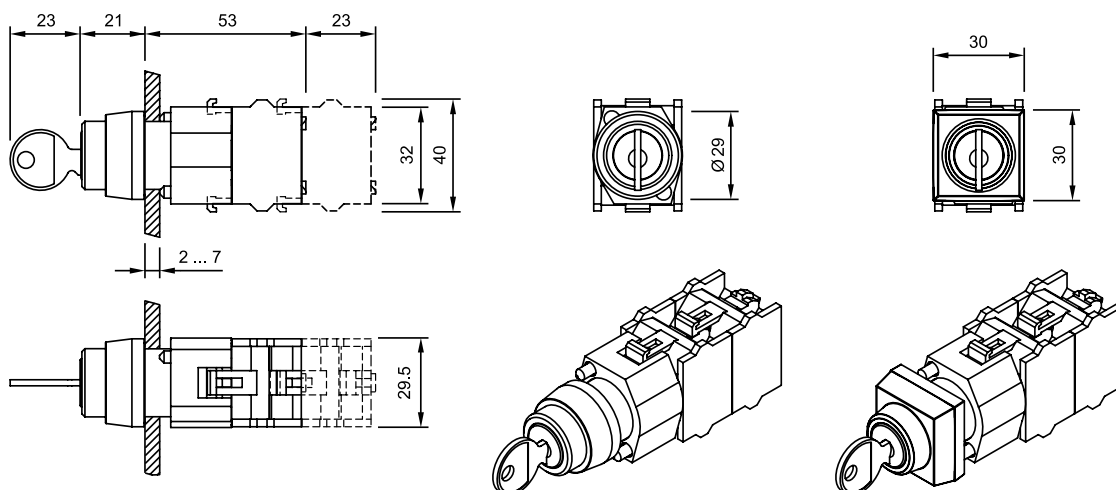


04 Head Pushbutton Mushroom



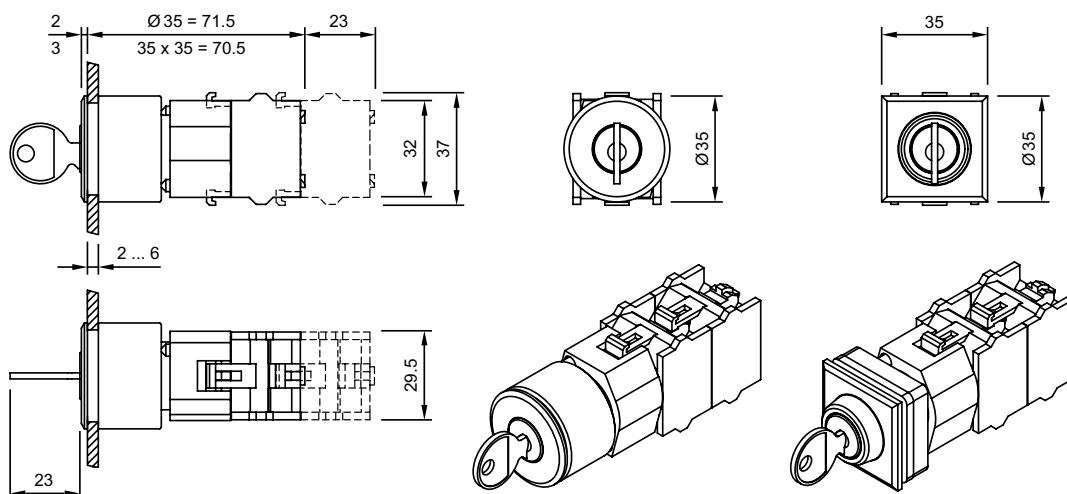
04 Keylock switch

2-Position, 3-Position, Raised



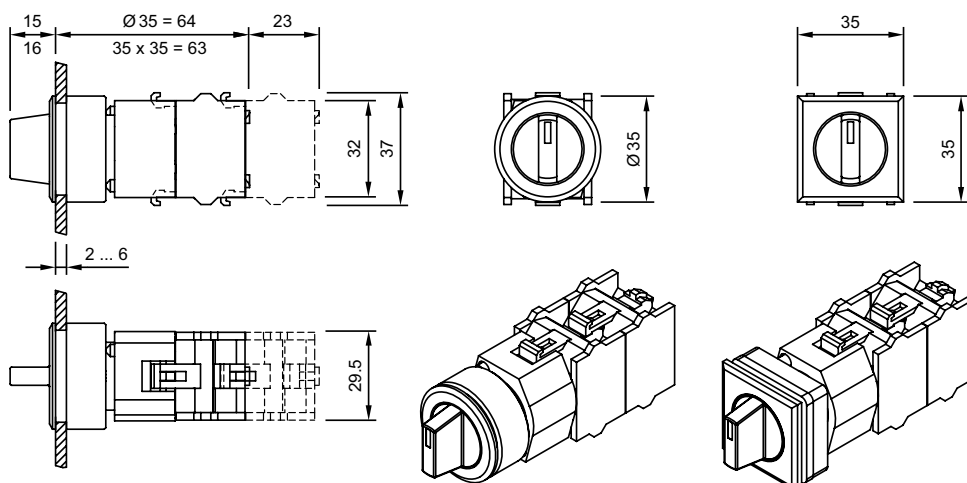
04 Keylock switch

2-Position, 3-Position, Flush



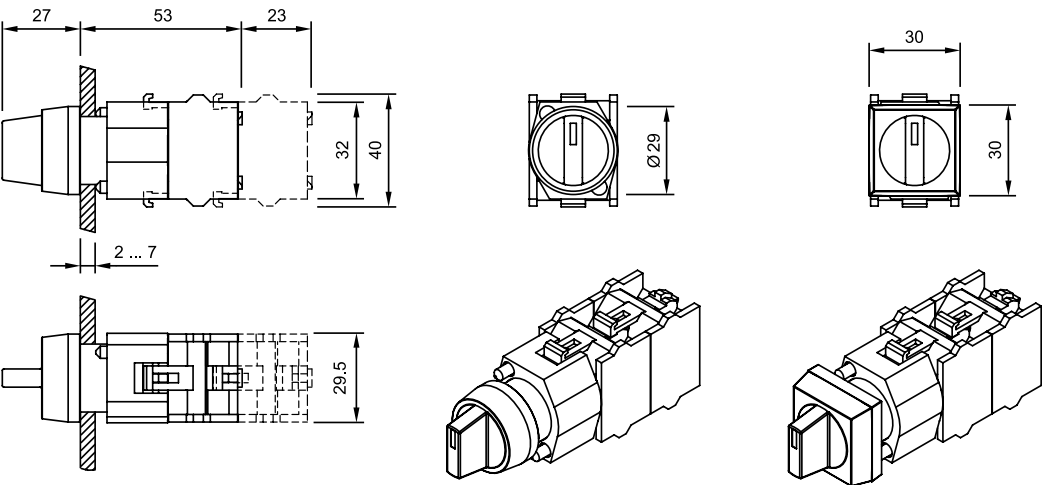
04 Selector switch

2-Position, 3-Position, Short lever, Flush



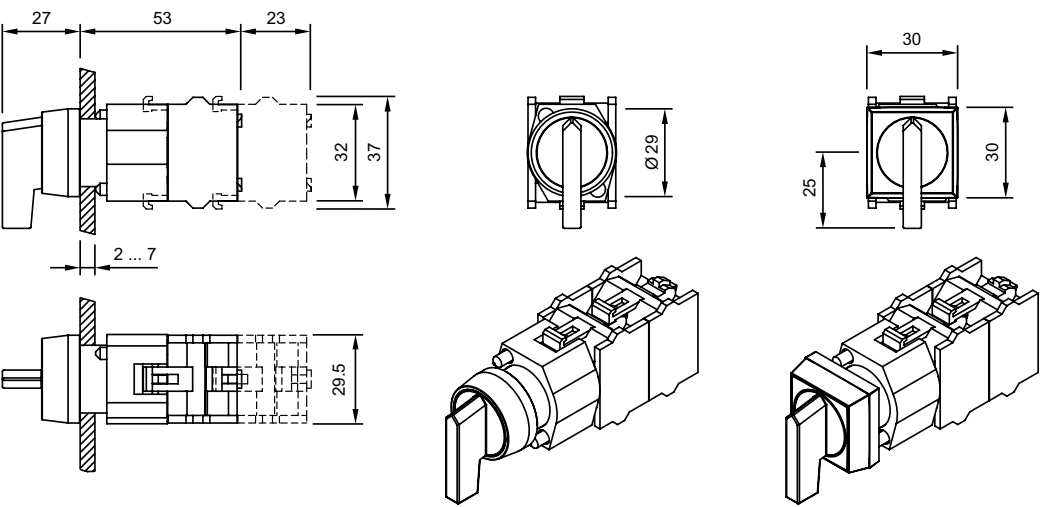
04 Selector switch

2-Position, 3-Position, Short lever, Raised



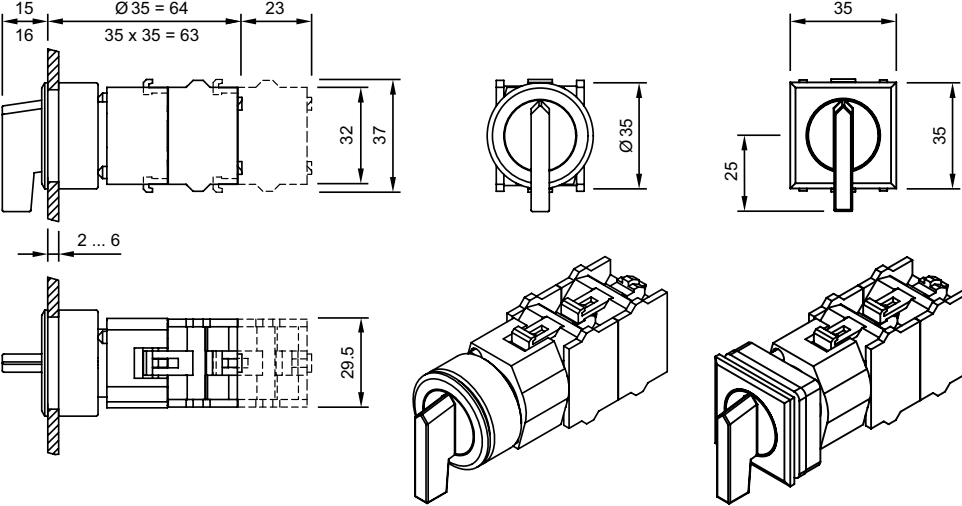
04 Selector switch

2-Position, 3-Position, Long lever, Raised



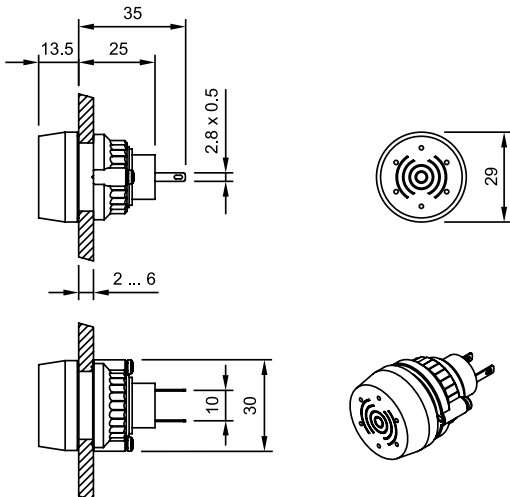
04 Selector switch

2-Position, 3-Position, Long lever, Flush



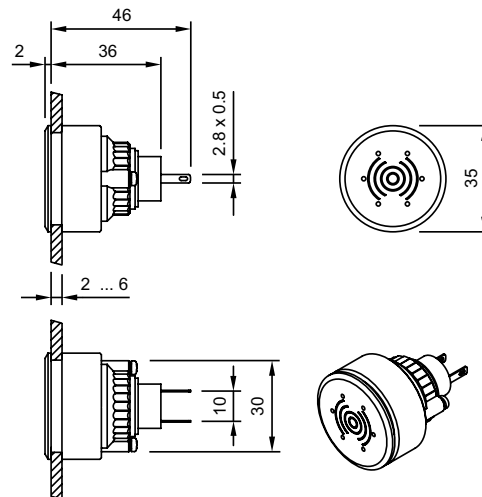
04 Buzzer

Raised



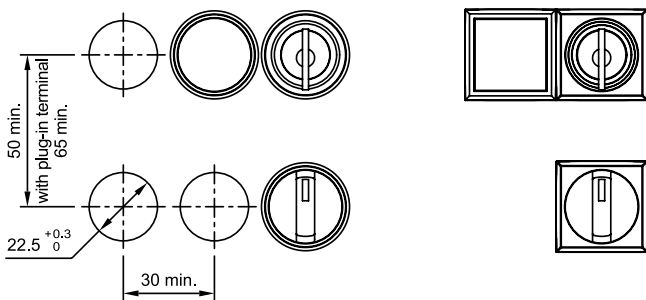
04 Buzzer

Flush



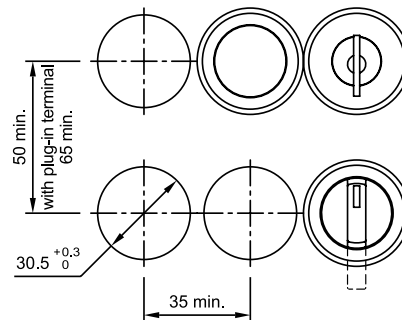
04 Cut-outs, Raised Mounting

(All but long lever)



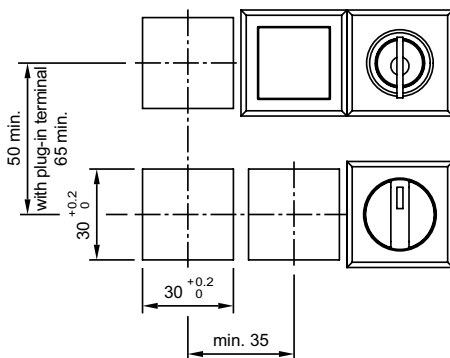
04 Cut-outs, Flush Mounting

(All but long lever)



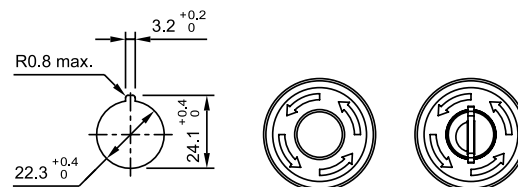
04 Cut-outs, Flush Mounting

(All but long lever)

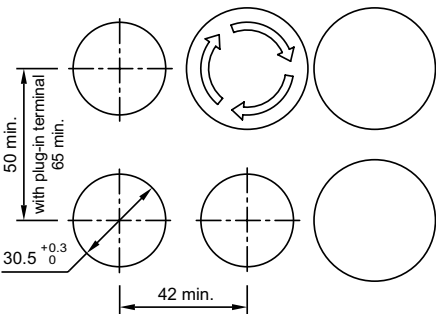


04 Cut-outs, Emergency-Stop

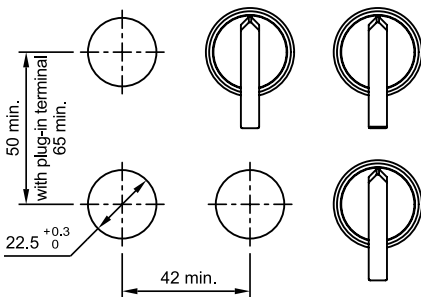
ISO 13850, Twist release, Key release



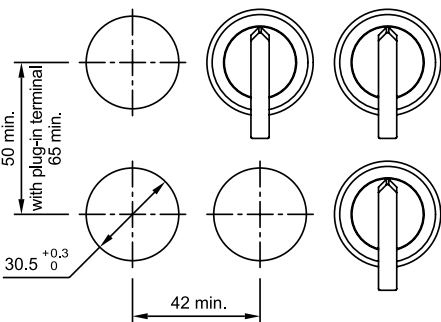
04 Cut-outs, Mushroom head



04 Cut-outs, Long Lever, Raised Mounting



04 Cut-outs, Long Lever, Flush Mounting



04 Cut-outs, Long Lever, Flush Mounting

