

KK0-20, KK1-32

- terminals with degree of protection IP 20
- 30°, 45°, 60°, 90° switching angle
- version mountable to installation board
- front plate dimensions, according to world-wide usage
- snap on a rail (35 mm) according to standard EN 50022
- legend plates can be ordered
- switch-disconnector,
- switch-disconnector with emergency stop function
- front plate with degree of protection IP 65 too
- lockable variant

	Front plate [mm]		P _e [kW] AC-3 400 V	I _{th} [A]
	basic	other		
KK0-20	□48	□64 □88	5,5	20
KK1-32	□64	□48 □88	11	32

KK2-40, KK2-63, KK2-80, KK2-115

- 60°, 90° switching angle
- front plate with degree of protection IP 65 too
- door coupling execution
- switch-disconnector
- switch-disconnector with emergency stop function
- padlockable variant
- front plate-dimensions according to world-wide usage

	Front plate [mm]	P _e [kW] AC-3 400 V	I _{th} [A]
KK2-40	□88	15	40
KK2-63		22	63
KK2-80		25	80
KK2-115		37	115

KK3-115, KK4-150, KK5-315

- front or rear mounting
- 45°, 60°, 90° switching angle
- front plate with degree of protection IP 65
- open or plastic enclosure
- padlockable variant

	Front plate [mm]	P _e [kW] AC-3 400 V	I _{th} [A]
KK3-115	□88	30	115
KK4-150	□88	37	150
KK5-315	□130	55	315

GK20 ... GK315

- open or plastic enclosure
- front or rear mounting
- front plate with degree of protection IP 65
- padlockable
- increased clearance between contacts
- door coupling execution
- fit to 45 mm mountplate-slot
- switch-disconnector
- switch-disconnector with emergency stop function
- snap on a rail (35 mm) according to standard EN 50022

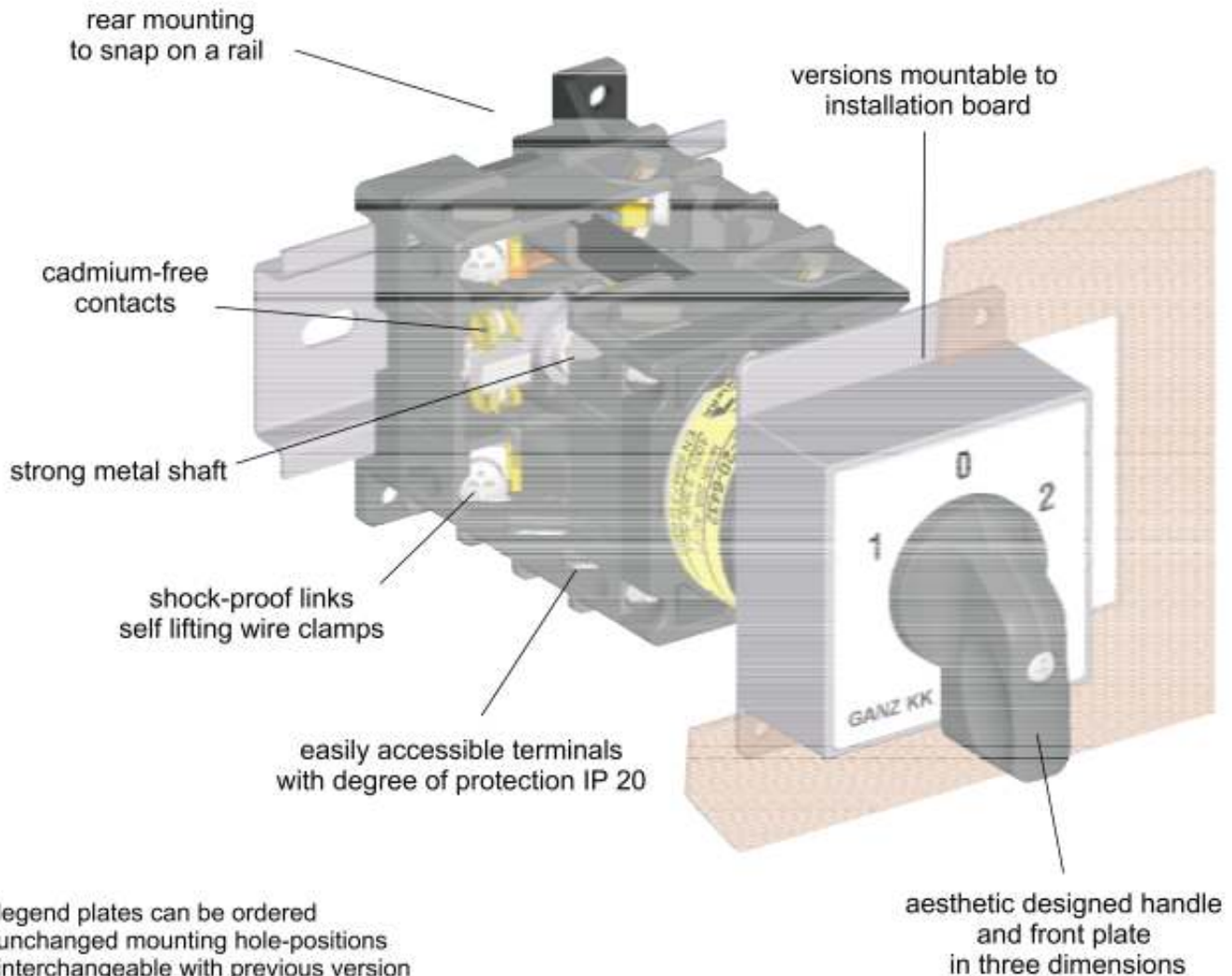
	Front plate [mm]	P _e [kW] AC-3 400 V	I _{th} [A]
GK20 GK20 A GK20 B	□30 □48 □64	5,5	25
GK32 GK32 A GK32 B	□30 □48 □64	7,5	32
GK41 GK41 B	□48 □64	11	40
GK64 GK64 B	□48 □64	18,5	63
GK80 GK80 C	□64 □88	22	80
GK100 GK100 C	□64 □88	30	100
GK125	□88	37	125
GK160	□88	45	160
GK250	□88	55	250
GK315	□88	75	315

KK0, KK1, KK2 rotary switches

Type-sizes of rotary switches: KK0, KK1, KK2.
The thermal current is indicated with hyphen in the type-sign of the switch-series renewed from 2-nd quarter 2002 year, for example: KK0-20, KK1-32, KK2-40, etc.
The numbering of switching programs is unchanged.

Types **KK0** and **KK1** can be ordered in versions mountable to installation board too, the new connecting terminals with degree of protection IP 20 make easier to connect of wires of frontmounting, rear mounting and enclosed execution as well.

Applied new technical solutions



- legend plates can be ordered
- unchanged mounting hole-positions
- interchangeable with previous version
- front plate-dimensions according to world-wide usage
- switch-disconnector and switch-disconnector with emergency stop function at KK0 and KK1 too
- possibilities of switching angles: 30°, 45°, 60°, 90°, switch with 12 position can be ordered too

Degree of protection of wire-clamps at type-size **KK2** switches is IP 20 (except KK2-115 type).

Lockable types have a key as the device's turning handle that can be removed only at 180° angles.

Switches in **plastic enclosures** have connecting terminals inside the enclosure to ensure the continuity of the neutral and earth wires.

Padlockable types can be ordered with one or more padlocking positions.

Switch-disconnector (black handle, padlockable) and **switch-disconnector with emergency stop function** (red handle, yellow background, padlockable) are padlockable in 0 position only.

After a preliminary agreement it can be delivered the **cold resisting variant** if the quantity is bigger.

Structure of order-code

Type-sign **KK E L 2 - 115 - 6002**

Degree of protection
 without letter:
 front plate IP 44
E: front plate IP 65
M: plastic enclosure

Version
 without letter:
 operation by handle
Z: lockable
L: padlockable
S: switch-disconnector
V: switch-disconnector
 with emergency stop

Size	Thermal current [A]
0	20
1	32
2	40
2	63
2	80
2	115

Number of switching program

First number shows the switching angle:
 3⇒30°; 4⇒45°; 6⇒60°; 9⇒90°;

Addition of type-sign
 (there is not at basic versions)

M1 C EX FX N T H

Increased enclosure
 M1: KK0 built in enclosure of KK1
 M2: KK1 built in enclosure of KK2

Legend plate

Special front plate
 EX: without front plate
 E0: with front plate of KK0, □ 48 mm
 E1: with front plate of KK1, □ 64 mm
 E2: with front plate of KK2, □ 88 mm
 EK: fit to 45 mm mountplate-slot

Special handle
 FX: without handle
 F0: with handle of KK0
 F1: with handle of KK1
 F2: with handle of KK2

Returning control operation

Door coupling (at KK2 only)

Mounting
 H: rear
 V: with two screws (distance between the holes: 30 mm)
 S: mountable in enclosure
 D: front and rear

Orderable versions

	Designation	Letter	KK0	KK1	KK2
Versions	Operation by lock	Z	+	+	-
	Padlockable	L	+	+	+
	Switch-disconnector	S	+	+	+
	Switch-disconnector with emergency stop	V	+	+	+
	Returning control operation	N	+	+	-
	Door coupling	T	-	-	+
Assortment of front plate	Without front plate	EX	+	+	+
	With front plate of KK0 (□ 48 mm)	E0	+	+	-
	With front plate of KK1 (□ 64 mm)	E1	+	+	-
	With front plate of KK2 (□ 88 mm)	E2	+	+	+
	Version mountable to installation board	EK	+	+	-
	Front plate with degree of protection IP 65	E	+	+	+
Legend plate		C	+	+	+
Assortment of handle	Without handle	FX	+	+	+
	With handle of KK0	F0	+	+	-
	With handle of KK1	F1	+	+	-
	With handle of KK2	F2	+	+	+
Mounting	Rear mounting	H	+	+	+
	on a rail 35 mm (EN 50022)	H	+	+	-
	with two screws	V	+	+	-
	Mountable in enclosure	S	+	+	+
	Front and rear	D	+	+	+
Enclosures	Built-in enclosure of KK0	M0	+	-	-
	Built-in enclosure of KK1	M1	+	+	-
	Built-in enclosure of KK2	M2	-	+	+

Examples: KKM0-20-6002 on-off switch $I_{th}=20$ A in enclosure
 KKM1-32-6002-M2 on-off switch $I_{th}=32$ A in increased enclosure (KK1 switch in enclosure of KK2)
 KKZ0-20-6006-N lockable $I_{th}=20$ A with returning control operation
 KK1-32-6002-E2 on-off switch $I_{th}=32$ A with KK2 front plate
 KKV2-80-9022-T $I_{th}=80$ A switch-disconnector with emergency stop function, with door coupling

KK0, KK1, KK2 rotary switches

Switching programs

Front plate	Description	Size	Switching program No.	Number of contacts	Number of chambers*	Connection diagram
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ON-OFF switches

	2 Pole	0	6001	2	1	
	3 Pole	0	6002	3	2	
	4 Pole	0	6044	4	2	
	3 Pole	0	9002	3	2	
		1	6042	4	2	
		2	6096	4	2	

Switch-disconnectors, emergency-stop switches

	3 Pole	0	9022	3	2	
	4 Pole	0	9021	4	2	

Motor (starter) switches

	reversing	0	6008	5	3	
	star-delta change-over	0	6009	8	4	
	star-delta change-over for two rotating directions	0	6492	10	6	
		1	6184	10	6	
		2	6092	10	6	
	for Dahlander motors, two positions	0	6013	8	4	
	two positions, one rotating direction for separate winded motors	0	6016	6	3	
	with one phase and one auxiliary phase for one rotating direction, returning	0	0493	3	2	
		1	0185	3	2	
	with one phase and one auxiliary phase for two rotating directions, returning from two directions	0	0494	6	5	
		1	0186	6	5	

Front plate	Description	Size	Switching program No.	Number of contacts	Number of chambers*	Connection diagram
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Returning control operators

	ON returning	0	0477	1	1	
		1	0166	1	1	
	OFF returning	0	0478	1	1	
		1	0167	1	1	
	ON-OFF returning from two directions	0	0479	1	1	
		1	0168	1	1	

Change-over switches

	2 Pole	0	6066	4	2	
	1 Pole	0	6043	6	6	
		0	6037	6	3	

Voltmeter change-over switches

	for 3 phase voltage	0	6032	4	3	
	for 3 line voltage	0	6033	4	3	
	for 3 line voltage and for 3 phase voltage	0	4036	8	4	
	for 3 line voltage and for 3 phase voltage without "0" position	0	6036	8	4	

Amperemeter change-over switch

	1 amperemeter 3 current transformer	0	9519	6	6	
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* At KK2-115 type number of chambers is twofold of the given value (it is possible max. 5 chambers)

KK0, KK1, KK2 rotary switches

Front plate	Description	Size	Switching program No.	Number of contacts	Number of chambers*	Connection diagram
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Front plate	Description	Size	Switching program No.	Number of contacts	Number of chambers*	Connection diagram
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Change-over switches with "0" position

	1 Pole	0	6426	2	1	
		1	6169	2	1	
		2	6094	2	1	
	2 Pole	0	6005	4	2	
		2				
	3 Pole	0	6006	6	3	
		2				
	4 Pole	0	6432	8	4	
		1	6129	8	4	
		2	6099	8	4	

Change-over switches without "0" position

	1 Pole	0	6476	2	1	
		1	6170	2	1	
		2	6093	2	1	
	2 Pole	0	6003	4	2	
		2				
	3 Pole	0	6004	6	3	
		2				
	4 Pole	0	6417	8	4	
		1	6171	8	4	
		2	6095	8	4	

Step switches with "0" position

	two-step	1 Pole	0	4480	2	1	
			1	4172	2	1	
		2 Pole	0	4481	4	2	
			1	4173	4	2	
	3 Pole		0	4482	6	3	
			1	4174	6	3	
			0	4483	3	2	
	three-step	1 Pole	1	4175	3	2	
			0	4484	6	3	
			1	4176	6	3	
		2 Pole	0	4485	9	5	
			1	4177	9	5	
	five-step	1 Pole	0	3600	5	5	
			1	3620	10	10	
		2 Pole	0	3601	5	5	
			1	3620	10	10	
	six-step	1 Pole	0	3700	6	6	
			1	3720	12	12	
		2 Pole	0	3701	6	6	
			1	3720	12	12	
	seven-step	1 Pole	0	3800	7	6	
			1	3820	14	12	
		2 Pole	0	3801	7	6	
			1	3820	14	12	
	eight-step	1 Pole	0	3900	8	6	
			1	3920	16	12	
		2 Pole	0	3901	8	6	
			1	3920	16	12	
	nine-step	1 Pole	0	3A00	9	6	
			1	3A20	18	12	
		2 Pole	0	3A01	9	6	
			1	3A20	18	12	
	ten-step	1 Pole	0	3B00	10	6	
			1	3B20	20	12	
		2 Pole	0	3B01	10	6	
			1	3B20	20	12	
	eleven-step	1 Pole	0	3C00	11	6	
			1	3C20	22	12	
		2 Pole	0	3C01	11	6	
			1	3C20	22	12	

Step switches without "0" position

	three-step	1 Pole	0	4486	3	2	
2 Pole		1	4178	3	2		
		0	4487	6	3		
3 Pole	1	4179	6	3			
	0	4488	9	5			
1 Pole	1	4180	9	5			
	0	4489	4	2			
2 Pole	1	4181	4	2			
	0	4490	8	4			
3 Pole	1	4182	8	4			
	0	4491	12	6			
1 Pole	1	4183	12	6			
	0	3619	6	6			
2 Pole	1	3639	12	12			
	0	3719	7	6			
1 Pole	1	3739	14	12			
	0	3819	8	6			
2 Pole	1	3839	16	12			
	0	3919	9	6			
1 Pole	1	3939	18	12			
	0	3A19	10	6			
2 Pole	1	3A39	20	12			
	0	3B19	11	6			
1 Pole	1	3B39	22	12			
	0	3C19	12	6			
2 Pole	1	3C39	24	12			

Special switching programs

The construction of this switch-series allows a large number of special types besides the listed ones. To make clear your order, it is practical to copy the enclosed "Order Form" (p. 11.) and attach it to your order.

Some piece of advice to design switching programs and how to fill the "Order Form":

- a common disc controls the contacts of the two circuits in one contact chamber, therefore the action of the two contacts is independent only in switching positions rotated to 180° angle;
- connecting terminals can be linked vertically inside the same chamber (1-3; 2-4 e.g.) and horizontally in two

neighboring chambers (1-5; 2-6 e.g.);

- maximum 8 contacts can be opened by one switching action;
- switching end-position can be arrested, but circle rotatable variants can be ordered also;
- at the KK2-115 type two contacts are parallel connected with a link on the side of the switch body;
- the 30° switching angle rotary switches with special programs we can only deliver in case of previous agreement and large quantity.

Filling of the "Order Form" for special switching programs

Order Form
for the planning of special switching programs for KK type rotary switches

Type: **KK 0-20-6005**

Switching angle:
☐ 45°
☒ 60°
☐ 90°

Rotating:
☐ sym
☒ no

Mounting:
☐ front
☒ rear
☐ front with 2 pos screws
☐ front and rear

Emergency-stop switch:
☐ sym
☒ no

Switch-disconnector:
☐ sym
☒ no

Front plate:
 markings on special type:
☐ 0/1

Terminal position:
 Contact position:
☐ open
☒ closed
☐ continuously closed
☒ returning contact
 Handle position:
☐ 1
☐ 2
☐ 3
☐ 4
☐ 5
☐ 6
☐ 7
☐ 8

Terminal indication:
 Links:
 1-2, 3-4, 5-6, 7-8, 9-10, 11-12, 13-14, 15-16, 17-18, 19-20, 21-22, 23-24, 25-26, 27-28, 29-30, 31-32, 33-34, 35-36, 37-38, 39-40, 41-42, 43-44, 45-46, 47-48

Terminal No.	Switching position				
	1	2	3	4	
				←	returning control operator
1-2		X			contacts are closed in switching position 2
3-4		X	X		a short opening occurs in case of 90° switching angle
5-6				X	returning contact (ON pushbutton) can be fitted only in outside-switching position 90°
7-8		X	X		contacts continually are closed in switching positions 2 and 3
9-10		X			delayed break contact
11-12			X		hurry-forward make contact
13-14		X			between two switching positions make contact giving short impulse, at 90° only
15-16			X		returning contact (OFF pushbutton)

This example shows the filling of the "Order Form" in case of the type KK0-20-6005 which is not a special switching program.

Rated operational DC currents

Rotary switches type KK... are suitable mainly for switching of alternating currents. The values of switchable direct currents depend particularly on speed of switching.

In case of bigger voltage's values it should be connected in series more current-paths.

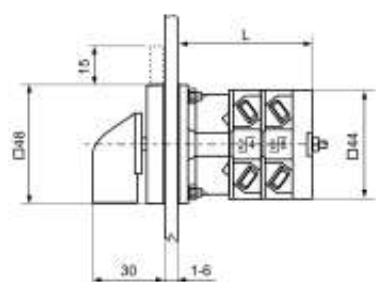
				KK0-20	KK1-32	KK2-40	KK2-63	KK2-80	KK2-115
I _e [A]	DC-21, T=1 ms	24...48 V DC	2 in series	20	32	40	63	63	-
		110 V DC	3 in series	12	20	25	35	35	-
		220 V DC	6 in series	10	16	20	32	32	-
	DC-23, T=7,5 ms	24...48 V DC	2 in series	12	20	25	35	35	-
		110 V DC	3 in series	10	16	20	25	25	-
		220 V DC	6 in series	8	12	16	22	22	-
	DC-13, T=50 ms	24...48 V DC	2 in series	10	16	-	-	-	-
		110 V DC	3 in series	5	8	-	-	-	-
		220 V DC	6 in series	2,5	4	-	-	-	-

Technical data

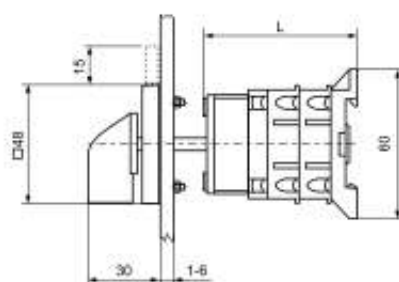
			KK0-20	KK1-32	KK2-40	KK2-63	KK2-80	KK2-115	
Rated insulation voltage [V]			690	690	690	690	690	690	
Rated impulse withstand voltage [kV]			6	6	6	6	6	6	
Conventional free-air thermal current $I_{th}=I_e$ (AC-21) [A]			20	32	40	63	80	115	
Switching power 3-phase P_e [kW] 400...690 V	AC-21		14	22	27,5	43,5	55	80	
	AC-23A		7,5	15	22	30	30	45	
	AC-3		5,5	11	15	22	25	37	
	AC-3	star-delta starting	7,5	15	22	30	30	-	
	AC-4		3	5,5	11	18,5	18,5	22	
Rated operational current I_e [A]	AC-23A	400 V	15,5	30	40	55	55	81	
		690 V	9	17,5	23,8	32	32	47	
	AC-3	400 V	11,7	22	30	41	46,6	68	
		star-delta starting	400 V	15,5	30	40	55	55	-
			690 V	9	17,5	23,8	32	32	-
	AC-15	230 V	6	8	-	-	-	-	
		400 V	4	6	-	-	-	-	
Electrical durability (50 c/h)		$[\times 10^6 \text{ c}]$	0,15	0,15	0,1	0,1	0,1	0,1	
of the switching power AC-3, 400 V		[kW]	5,5	11	15	22	25	37	
Mechanical durability $[\times 10^6 \text{ c}]$			0,5	0,5	0,3	0,3	0,3	0,3	
Max. switching frequency [c/h]			1500						
Ambient temperature at 80 % rel. humidity $^{\circ}\text{C}$		standard	-5... +40						
		cold-resisting	-40... +40						
Degree of protection	switch body		IP 20					IP 00	
	front plate basic type		IP 44						
	increased protection		IP 65						
	enclosed		IP 65						
	lockable		IP 42	IP 42	-	-	-	-	
Cross-section of connectable wires $[\text{mm}^2]$	solid	1×2,5	1×6	1×25	1×25	1×25	Ø6× 35 mm ² cable shoe		
		2×1,5	2×4	2×10	2×10	2×10			
	stranded	1×2,5	1×4	1×16	1×16	1×16			
		2×1,5	2×2,5	2×6	2×6	2×6			
Max. number of elements	open		12	12	10	10	10	5	
	in normal enclosure		4	4	4	4	4	-	
	in larger enclosure		6	6	-	-	-	-	
Rated short-time withstand current (1s) [A]			350	500	800	800	800	1300	
Pick withstand current [A]			700	1100	1600	1600	1600	1600	
Rated short-circuit making capacity [A]			250	300	500	500	500	500	
Rated conditional short-circuit current,		$[\text{kA}_{eff}]$	6	6	15	15	15	25	
with fuse		[A]	25	35	63	63	80	125	
Protection class / overvoltage category			II. / III.						
Relevant standards			EN 60947, EN 60204-1						
Switching angle			30°; 45°; 60°; 90°			60°; 90°			

KK0, KK1, KK2 rotary switches

Dimensions

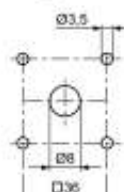


KK0-...



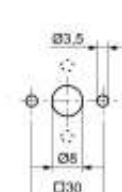
KK0-...-H

Mounting dimensions



switch body and front plate

E0



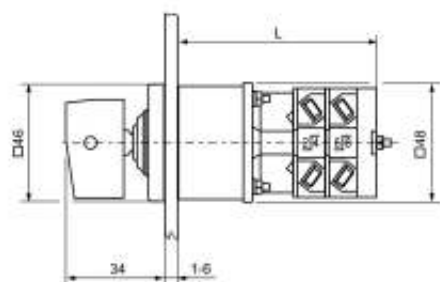
switch body and front plate

KK0-...-V

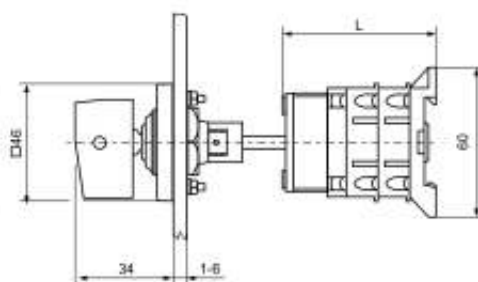


switch body

KK-...0-...-H



KKZ0-...



KKZ0-...-H

Mounting dimensions



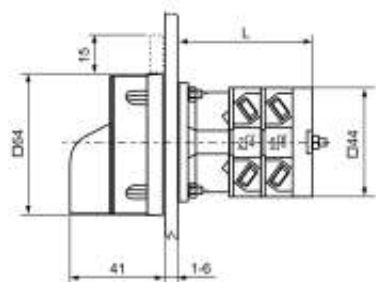
switch body and front plate

KKZ0-...

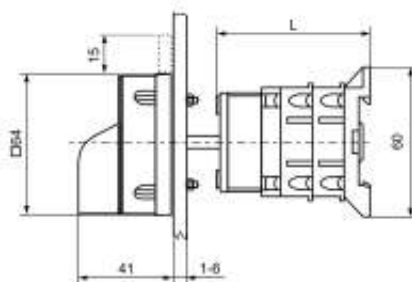


switch body

KKZ0-...-H

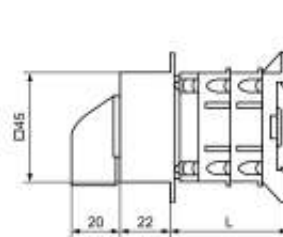
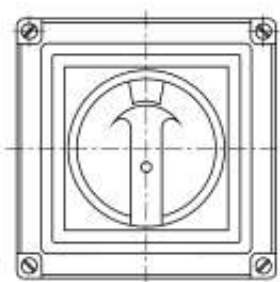
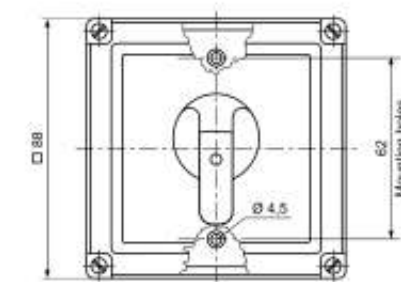


KKL0-...



KKL0-...-H

Number of chambers	1	2	3	4	5	6	7	8	9	10	11	12
KK0-...	42	55,6	69	82,8	96	109	123	136	150	163	177	180
KKL0-...	68,6	82,1	95,6	109	123	136	150	163	177	190	204	217
KK0-...-H	50,6	64	76,5	90	104	117	131	144	158	171	186	198
KKL0-...-H												
KKV0-...-H												
KKZ0-...-H												

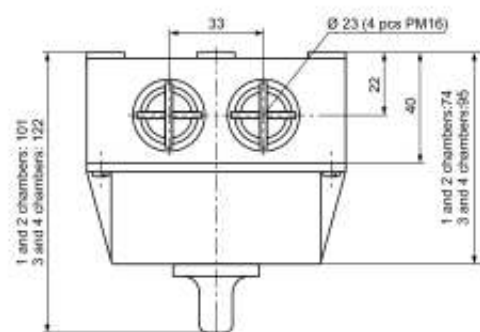


chambers	1	2	3	4	5	6
L	35	49	62	76	89	103

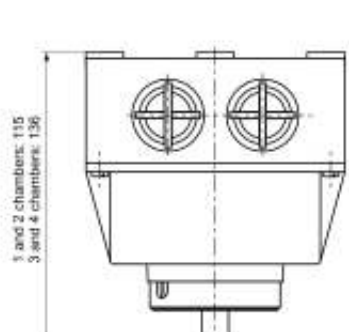


Mounting dimensions (switch body)

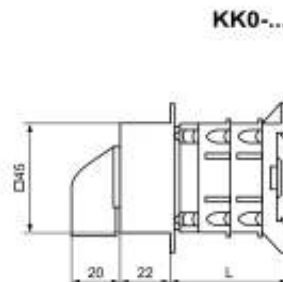
KK0-...-EK



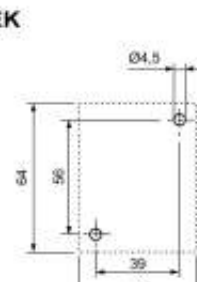
KKM0-...



KKML0-..., KKMS0-..., KKMV0-...

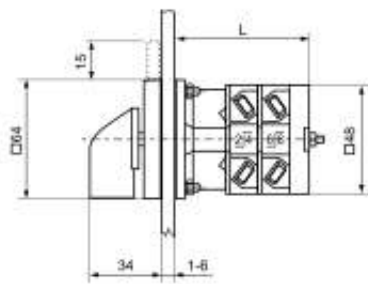


chambers	1	2	3	4	5	6
L	40	56	72	88	104	120

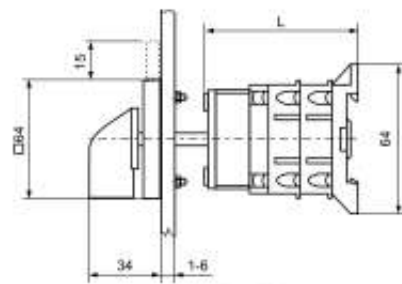


Mounting dimensions (switch body)

KK1-...-EK



KK1-...



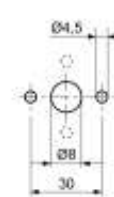
KK1-...-H

Mounting dimensions



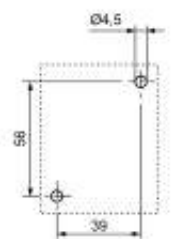
switch body and front plate

E1



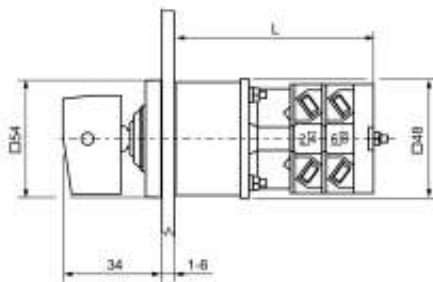
switch body and front plate

KK1-...-V

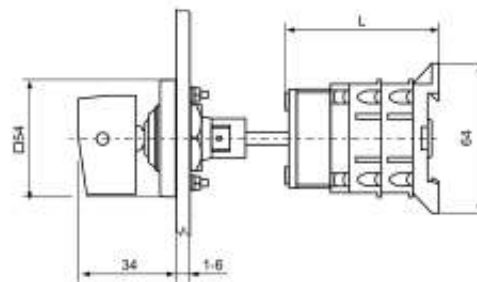


switch body

KK...1-...-H

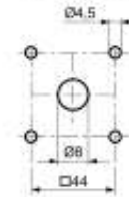


KKZ1-...



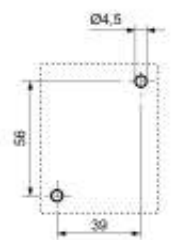
KKZ1-...-H

Mounting dimensions



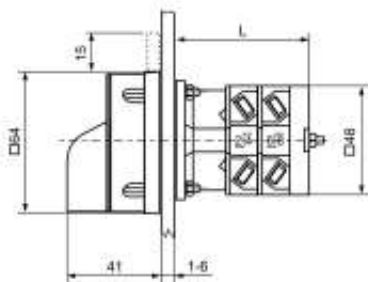
switch body and front plate

KKZ1-...

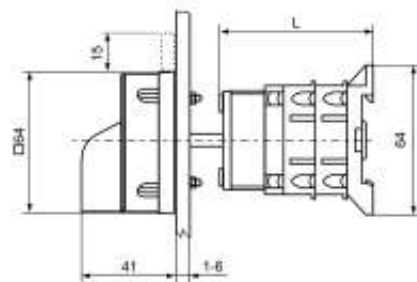


switch body

KKZ1-...-H

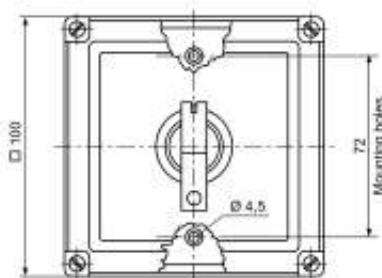


KKL1-...

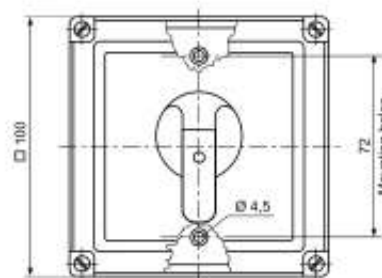


KKL1-...-H

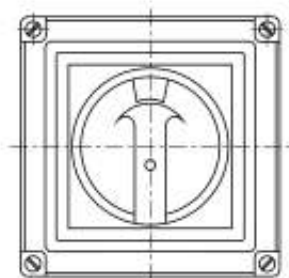
Number of chambers	1	2	3	4	5	6	7	8	9	10	11	12
KK1-...	48	64	80	96	112	128	144	160	176	192	208	224
KKL1-...	74.6	90.6	107	123	139	155	171	187	203	219	235	251
KKZ1-...	55	71	87	103	119	135	151	167	183	199	215	231



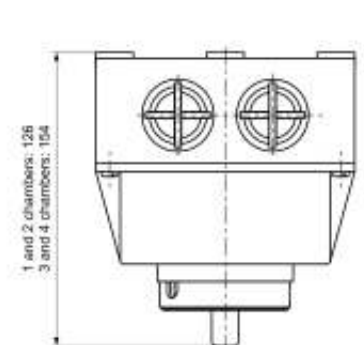
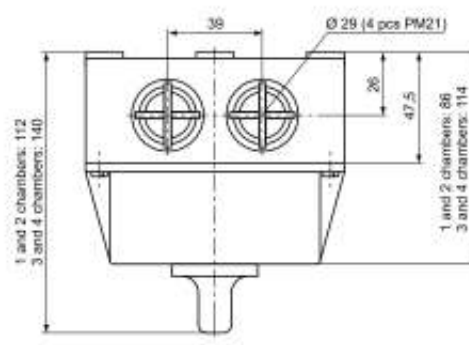
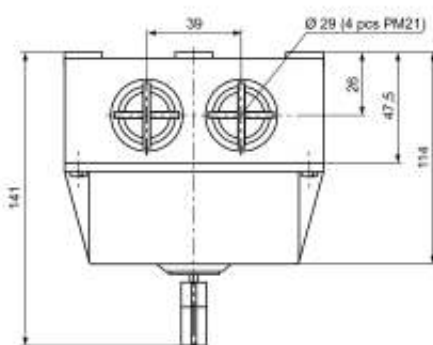
KKMZ0-...-M1



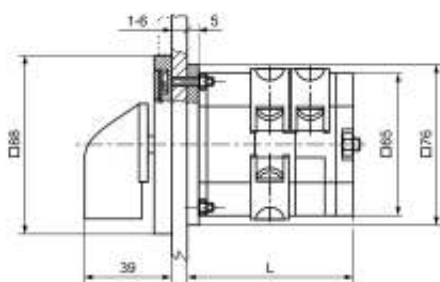
KKM1-...



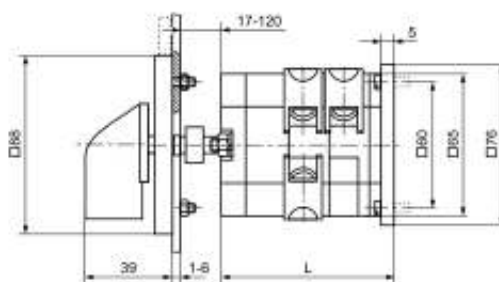
KKML1-..., KKMS1-..., KKMV1-...



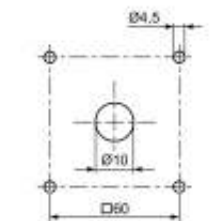
KK0, KK1, KK2 rotary switches



KK2-...

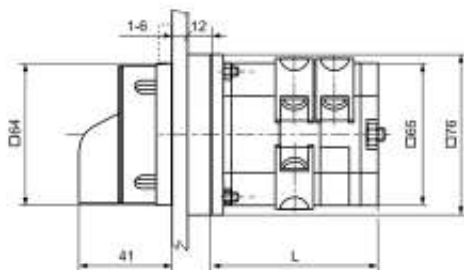


KK2-...-H

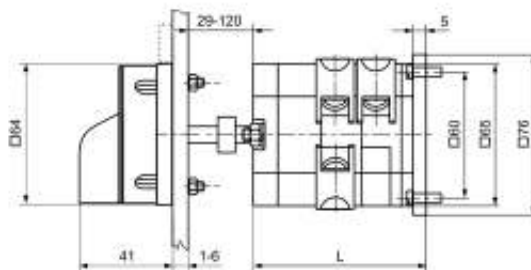


Mounting dimensions
(switch body and front plate)

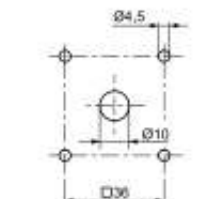
E2



KKL2-..., KKS2-..., KKV2-...

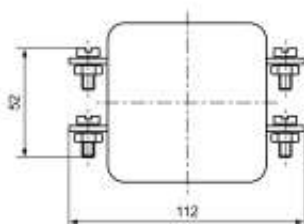


KKL2-...-H, KKS2-...-H, KKV2-...-H



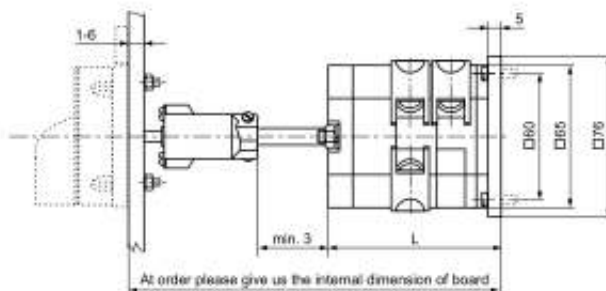
Mounting dimensions
(switch body and front plate)

L2, S2, V2

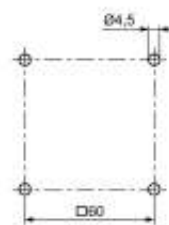


KK2-115

Overhang of terminal-plates



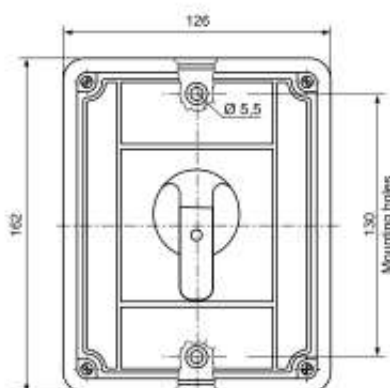
KK2-...-T, KKL2-...-T, KKS2-...-T, KKV2-...-T,



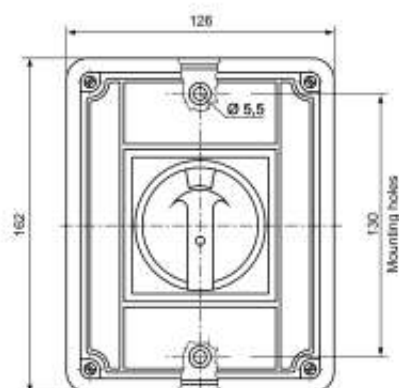
Mounting dimensions
(switch body)

KK2-...-H

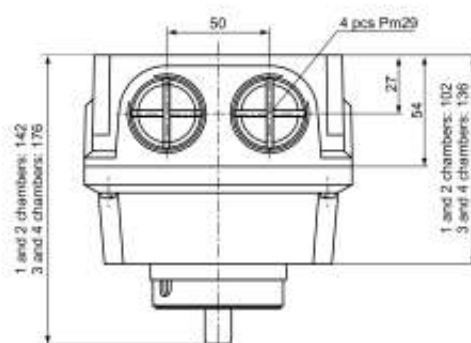
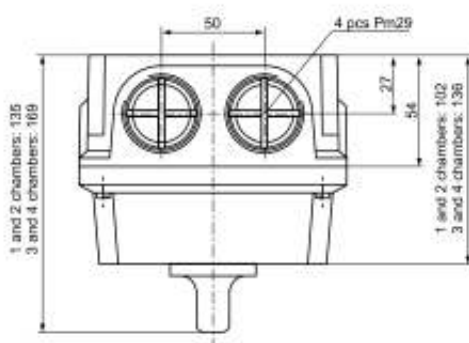
Number of chambers	L	
	KK2-40 KK2-63 KK2-80	KK2-115
1	53	70
2	70	104
3	87	138
4	104	172
5	121	206
6	138	
7	155	
8	172	
9	189	
10	206	



KKM2



KKML2; KKMS2; KKMV2



Order Form

for the planning of special switching programs for KK type rotary switches

Type:

KK.....

Switching angle

- ☐ 45°
☐ 60°
☐ 90°

Rotating

- ☐ yes
☐ no

Mounting

- ☐ front
☐ rear
☐ front with 2 pcs screws
☐ front and rear

Emergency-stop switch

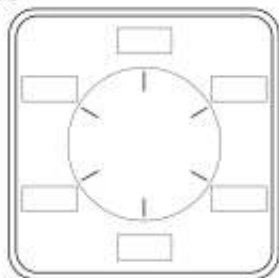
- ☐ yes
☐ no

Switch-disconnector

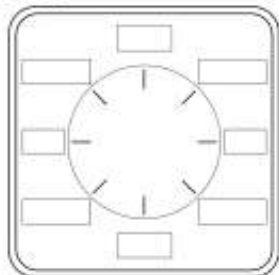
- ☐ yes
☐ no

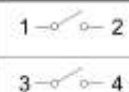
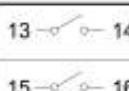
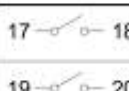
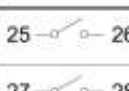
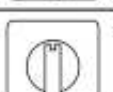
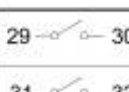
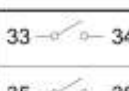
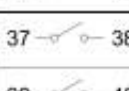
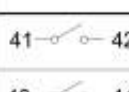
Front plate

markings on
special type:
60°



45°/90°



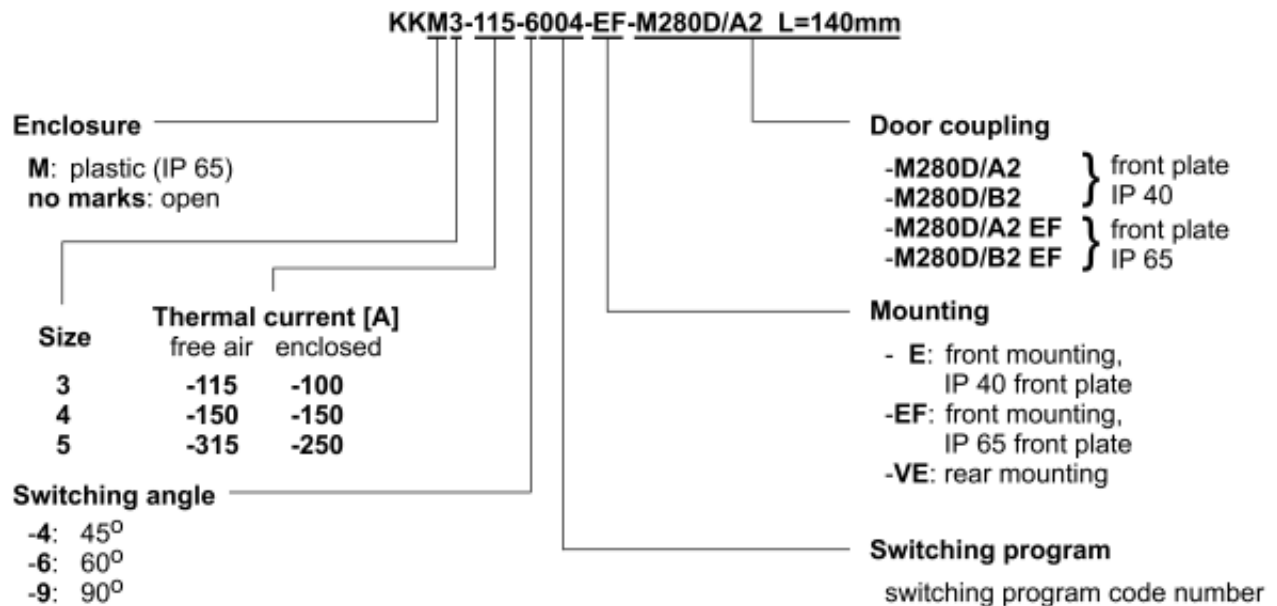
Contact-chamber N°	Terminal position	Contact position:								Links	Terminal indication	Links
		open: ☐ closed: ☒ continually closed: ☐ returning control: ☐ Handle positions:										
		1	2	3	4	5	6	7	8			
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

KK3, KK4, KK5 rotary switches

The basic unit of the switches is the chamber containing 1 or 2 double breaking contacts. These contacts are moved

in perpendicular direction to the shaft by control discs attached to the shaft.

Ordering information



Door coupling types offer the possibility of operating the switch by a special tool only when the door is open. This special tool has the profile-covering of this shaft. Door coupling can be ordered with lock, it means that the door can be opened only if the switch is in "0" position. The most common combinations are listed below:

- with profil-covering, without lock: A2
- with profil-covering, with lock: B2

The length of the shaft (L) is according to the dimensions on page 14.

For emergency-stop switch or switch-disconnector functions we recommend our GK types.

Ordering example: KKM3-115-6002-E

Switching programs

Description	Front plate	Switching program No.	Size	Number of chambers	Number of contacts	Connection diagram
-------------	-------------	-----------------------	------	--------------------	--------------------	--------------------

ON-OFF switches

1 Pole		6054	3 4 5	1	1	
2 Pole		6001	3 4 5	1	2	
3 Pole		6002	3 4 5	2	3	
4 Pole		6046	3 4 5	2	4	

Change-over switches without "0" position

1 Pole		6047	3 4 5	1	2	
2 Pole		6048	3 4 5	2	4	
3 Pole		6004	3 4 5	3	6	
4 Pole		6049	3 4 5	4	8	

Change-over switches with "0" position

		6050	3 4 5	1	2	
2 Pole		6051	3 4 5	2	4	
3 Pole		6006	3 4 5	3	6	
4 Pole		6044	3 4 5	4	8	

Description	Front plate	Switching program No.	Size	Number of chambers	Number of contacts	Connection diagram
-------------	-------------	-----------------------	------	--------------------	--------------------	--------------------

Motor (starter) switches

reversing		6008	3 4 5	3	5	
star-delta change-over		6009	3 4 5	4	8	
star-delta change-over for two rotating directions		4052	3 4 5	5	10	
for Dahlander motors two positions		6013	3 4 5	4	8	
two positions one rotating direction for separate winded motors		6016	3 4 5	3	6	

Assortment of front plates

Under drawing of the front plates are the switching program N^o and the type-size of the switch.

60° switching angle

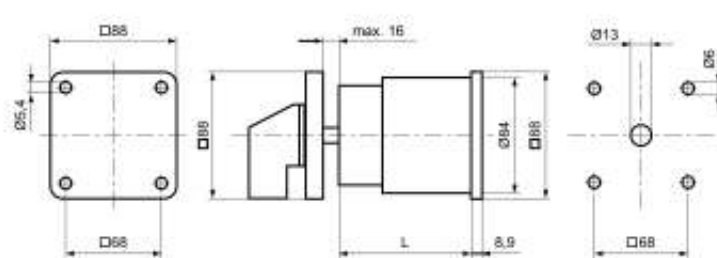
F070 3,4,5	F071 3,4,5	F072 3,4,5	F073 3,4	F080 3,4,5
F249 3,4	F754 3,4			

KK3, KK4, KK5 rotary switches

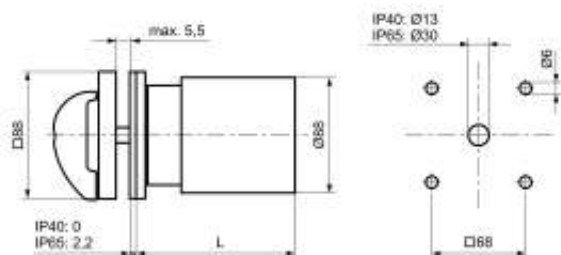
Dimensions



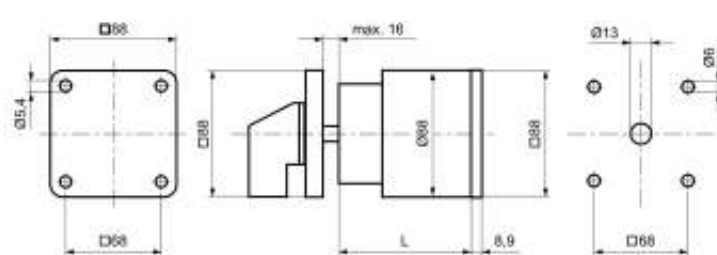
KK3 ... E and EF



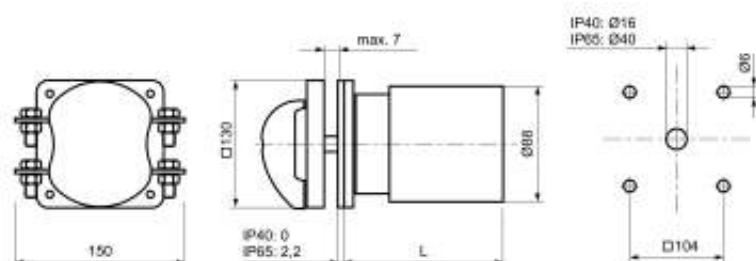
KK3 ... VE



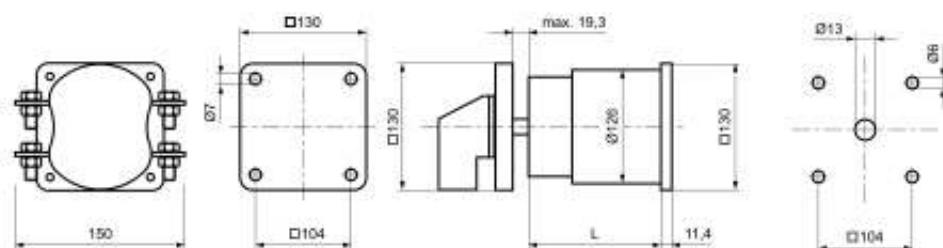
KK4 ... E and EF



KK4 ... VE



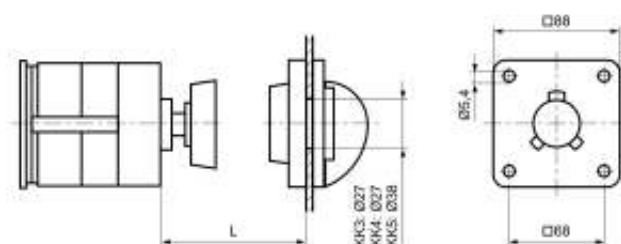
KK5 ... E and EF



KK5 ... VE

Number of chambers	L		
	KK3	KK4	KK5
1	61,5	67,5	78,6
2	88,0	100	117,2
3	114,5	132,5	155,8
4	141,0	165,0	194,4
5	167,5	197,5	233,0
6	194,0	230,0	271,6
7	220,5	262,5	310,2
8	247,0	295,0	348,8
9	273,5	327,5	387,4
10	300,0	360,0	426,0
11	326,5	392,5	464,6
12	353,0	425,0	503,2

Door coupling M280D. and M280D/. EF



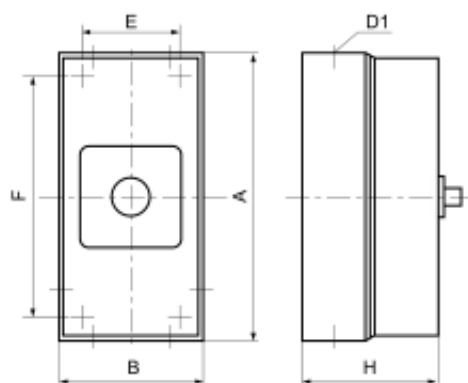
In the order should be given the value of L from these:

KK3: 60...90 mm; 90...120 mm; 120...150 mm; 150...180 mm

KK4: 60...90 mm; 90...120 mm; 120...150 mm; 150...180 mm

KK5: 60...95 mm; 95...130 mm; 130...165 mm; 165...200 mm

Plastic enclosures



Type-size	Max. number of chambers	Code of enclosure	Degree of protection	Dimensions [mm]					Stuffing box (D1)
				A	B	H	E	F	
KKM3	1	ST1 A011B	IP 54	180	140	115	128	150	2× Pg29 and 1× Pg11
	2	ST1 A011B ST6 T999/B016	IP 54 IP 65	180 280	140 190	115 130	128 164	150 254	
	3	ST6 T999/B019	IP 65	280	190	180	164	254	
KKM4	1	ST1 A011A	IP 54	180	140	115	128	150	
	2	ST6 T999/B019	IP 65	280	190	180	164	254	
	3	ST6 T999/B019	IP 65	280	190	180	164	254	
KKM5	2	ST6 T999/B022	IP 65	280	280	230	254	254	2× Pg36 and 4× Pg16
	3	ST6 T999/B025	IP 65	280	280	280	254	254	

Technical data

										KK3-115	KK4-150	KK5-315	
Rated insulation voltage [V]										690			
Rated impulse withstand voltage [kV]										6			
Conventional thermal current [A]										free-air	115	150	315
										enclosed	100	150	250
Rated operational current (AC-21A and AC-22A) [A]										100	150	315	
Breaking capacity [A]										3×220...240 V	830	1200	2000
										3×380...440 V	700	1200	2000
										3×660...690 V	480	480	335
Switching power [kW]										AC-3 380...440 V	30	37	55
										AC-23A 380...440 V	45	75	132
Rated operational d.c. current [A]													
number of serially connected contacts: 1 2 3 4 5 6 8													
max. operational voltage [V]:													
-resistive load T<1 ms										24 48 70 95 120 145 190	125	200	315
										48 95 140 190 240 290 350	100	160	250
-inductive load T=50 ms										24 48 70 95 120 145 190	100	160	250
										30 60 90 120 150 180 240	33	50	70
Short-circuit strength										max. value of gL characteristic fuse [A]	125	200	315
										rated short-time withstand current (1 s) [A]	1300	2000	4200
										rated conditional short-circuit current [kA _{eff}]	25	25	30
Max. cross-section of connected wires [mm ²]										single core	35	70	185
										stranded (with ferrule)	25	50	150
Degree of protection of plastic enclosures										IP 65			
Max. number of chambers										open	12		
										enclosed KKM	3	3	3
Protection class											II		
Relevant standards										EN 60947, EN 60204-1			

GK20 ... GK315 rotary switches

The structure of a GK switch is different from the previously described KK types. The basic unit of a GK switch contains three double breaking contacts moving in line with the shaft.

The above described difference in structure refers to different fields at application. Because of the larger opening clearance the GK switches are particularly suitable for switch-disconnector and emergency-stop switch functions but can not be used for example as star-delta motorstarters.

All types are made with 90° switching angle.

Loosely screwed "self-lifting" clamps offer easy connecting. These wire clamps are delivered with non-losable screws and - up to GK 160 - with shrouding against accidental touching.

Modular construction allows subsequent changes, so stocking costs can be lowered.

Further modules - except the cam-driven and rack-driven auxiliary contacts - can be snapped on the switches even after mounting.

Under the GK 160 size the switches can contain one or two basic units with three or four main contacts. Above this size only one basic unit can be in a switch.

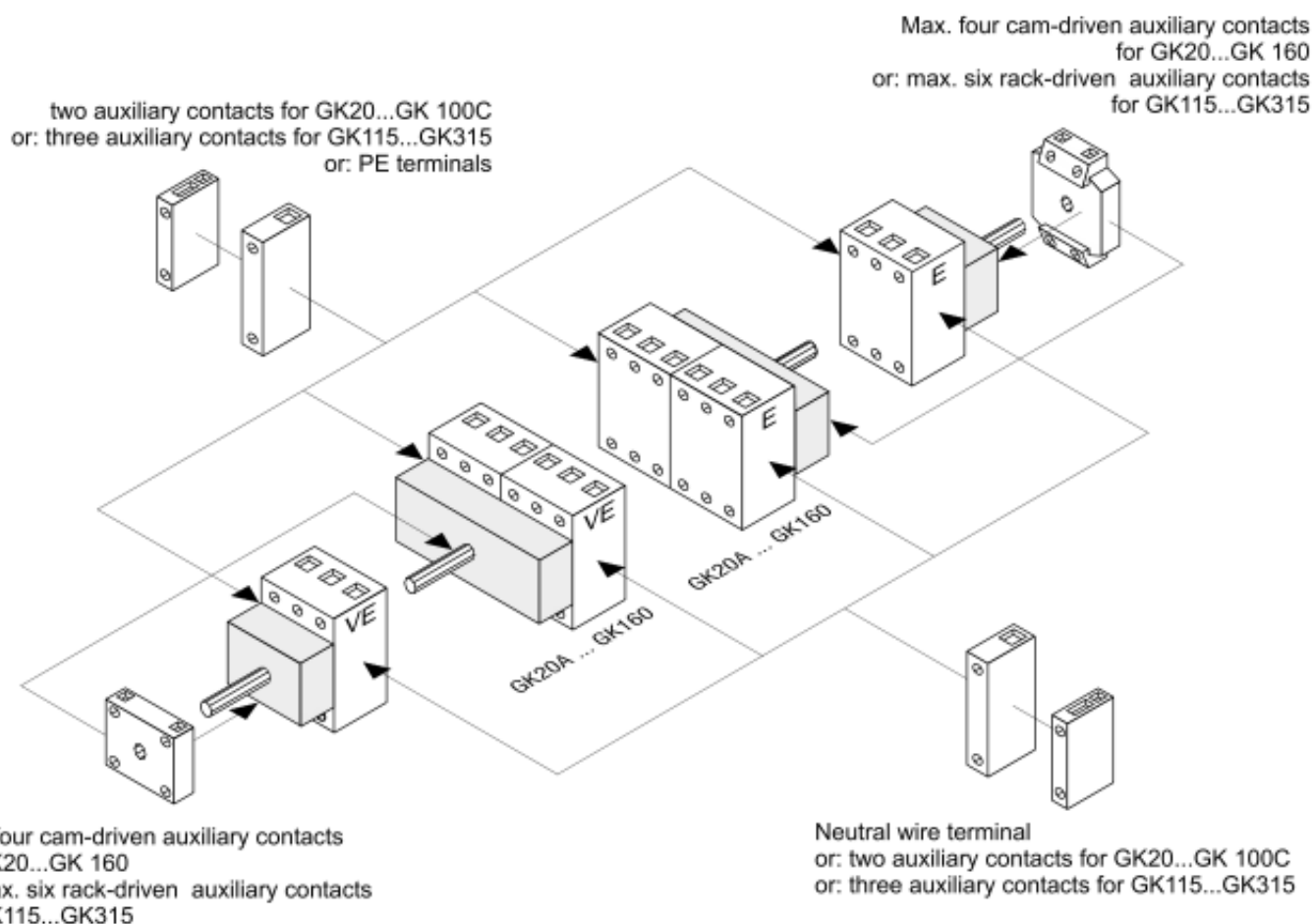
Elements that can be fixed to the left or right side of the switch:

earth wire terminal
neutral wire terminal
auxiliary contact

The above elements can be snapped into place simply by pushing the elements in parallel direction with the shaft in the special slot while the switch is in "ON" position.

At door-coupling versions the door of board is openable only in O position of switch.

Structure of the switches having three main contacts:



Technical data

Dimensions of front plate [mm×mm]	30×30	GK20	GK32	-	-	-	-	-	-	-	-
	48×48	GK20A	GK32A	GK41	GK64	-	-	-	-	-	-
	64×64	GK20B	GK32B	GK41B	GK64B	GK80	GK100	-	-	-	-
	88×88	-	-	-	-	GK80C	GK100C	GK125	GK160	GK250	GK315
Rated values											
Insulation voltage [V]	690	690	690	690	690	690	690	1000 ²⁾	1000 ²⁾	1000 ²⁾	1000 ²⁾
Impulse withstand voltage [kV]	6	6	6	6	6	6	6	8	8	8	8
Conventional thermal current [A]											
free air	25	32	40	63	80	100	125	160	250	315	
enclosed	25	32	40	50	63	80	100	140	200	250	
Operational current (AC-21A) [A]	20	32	40	63	80	100	125	160	200	250	
Breaking capacity [A]											
3×220...240 V	180	220	300	350	560	700	800	900	1600	1800	
3×380...440 V	180	220	300	350	560	650	750	850	1380	1650	
3×660...690 V	125	135	150	190	200	280	340	340	400	400	
As switch-disconnector											
limiting voltage of realization of disconnecting conditions [V] ¹⁾	690	690	690	690	690	690	690	1000 ²⁾	1000 ²⁾	1000 ²⁾	1000 ²⁾
Switching power											
AC-3 motorstarter [kW]											
3×220...240 V	3	4	7,5	11	15	18,5	22	30	37	45	
3×380...440 V	5,5	7,5	11	18,5	22	30	37	45	55	75	
3×660...690 V	5,5	7,5	11	15	18,5	22	30	37	45	45	
AC-23 motorstarter and AC-23B switch-disconnector [kW]											
3×220...240 V	4	5,5	7,5	11	18,5	22	30	30	37	55	
3×380...440 V	7,5	11	15	22	30	37	45	55	90	110	
3×660...690 V	7,5	11	15	18,5	22	30	37	37	45	45	
Short-circuit strength											
Max. value of gL char. fuse [A]	35	35	50/35	63/50	80	100	125	160	200	250	
Rated values	15	15	15/25	15/25	25	25	30	30	30	30	
Cond. short-circuit current [kA _{eff}]	350	430	500	580	1600	1850	2500	3000	4600	5800	
Short-time withstand current [A]											
Max. cross-section of connected wires											
solid (single and multicore) [mm ²]	6	6	16	16	35	35	95	95	185	185	
stranded, with ferrule [mm ²]	4	4	10	10	25	25	50	50	120	120	
max. width of copper rail [mm]	-	-	-	-	-	-	20	20	25	25	
dimension of terminal screw	-	-	-	-	-	-	M10	M10	M12	M12	

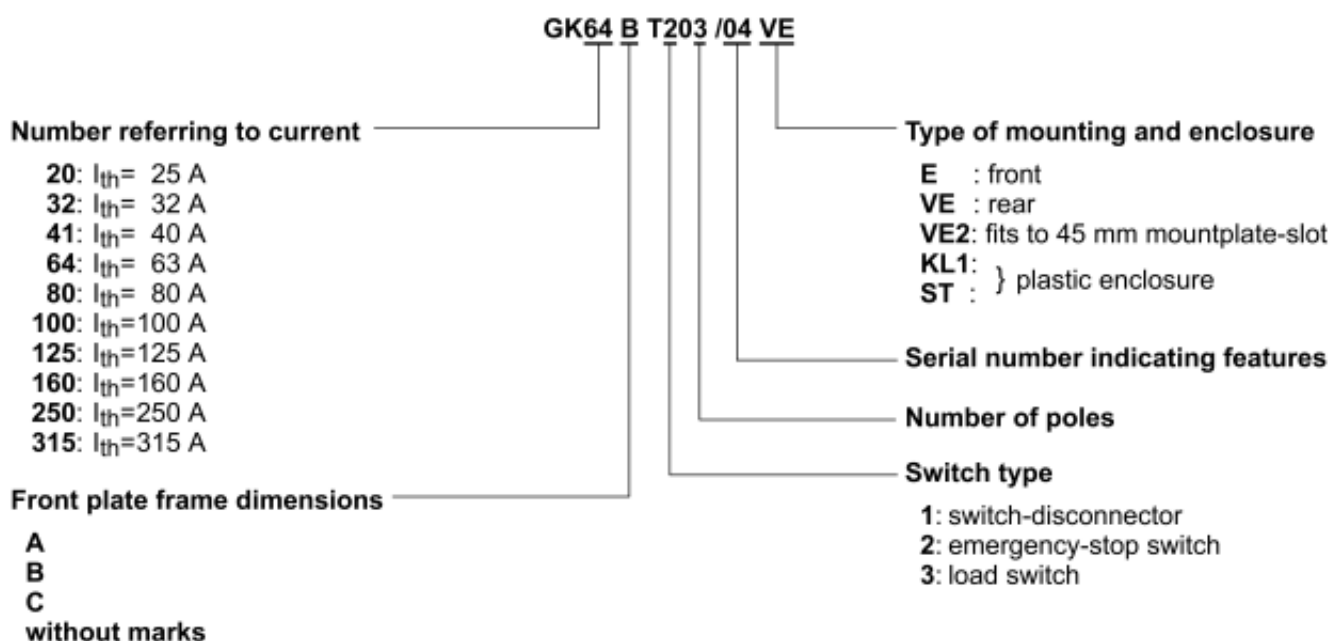
Auxiliary contacts

Rated values											
Insulation voltage [V]	500	500	690	690	690	690	690	690	690	690	690
Impulse withstand voltage [kV]	6	6	6	6	6	6	6	6	6	6	6
Conventional thermal current [A]											
free air	10	10	16	16	16	16	16	16	16	16	16
enclosed	10	10	16	16	16	16	16	16	16	16	16
Operational current AC-15 [A]											
220...240 V	2,5	2,5	6	6	6	6	6	6	6	6	6
380...440 V	1,5	1,5	3	3	3	3	4	4	4	4	4
Short circuit strength											
Max. value of gL char. fuse [A]	10	10	16	16	16	16	16	16	16	16	16
Rated cond. short-circuit c. [kA _{eff}]	3	3	3	3	3	3	3	3	3	3	3
Max. cross-section of connected wires											
solid (single and multicore) [mm ²]	1,5	1,5	4	4	4	4	4	4	4	4	4
stranded [mm ²]	1,5	1,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5

1) in case of network with earthed neutral, overvoltage category: III., pollution degree: 3

2) in case of switching without load over 690 V (AC-20A)

Ordering informations



Switch-disconnectors, emergency-stop switches

The EN 60204-1 standard (Safety machinery Electrical equipment of machines.) specifies the requirements for emergency-stop switches and switch-disconnectors:

Switch-disconnector

- black or gray handle, if the device is not used as an emergency-stop switch as well;
- only two ("ON" and "OFF") positions, marked as "O" and "I" (in the directions of 9 o'clock and 12 o'clock);
- padlockable in "OFF" position;

-position indicator can only show "OFF" if the contacts are open.

Emergency-stop switch

- red handle on yellow background

If a switch-disconnector is used as an emergency-stop switch for same machines, then the device must have a red handle on yellow background.

The switches shown in the below chart are according to the EN 60204-1 standard.

Ordering data

3-pole ON-OFF load switch			4-pole ON-OFF load switch		
Front mounting, IP 65 protection	Rear mounting, IP 40 protection		Front mounting, IP 65 protection	Rear mounting, IP 40 protection	
	without shaft-lengthening	with shaft-lengthening		without shaft-lengthening	with shaft-lengthening
GK20A T303 E	GK20A T303 VE	GK20A T303/57 VE	GK20A T304 E	GK20A T304 VE	GK20A T304/57 VE
GK32A T303 E	GK32A T303 VE	GK32A T303/57 VE	GK32A T304 E	GK32A T304 VE	GK32A T304/57 VE
GK41 T303 E	GK41 T303 VE	GK41B T303/57 VE	GK41 T304 E	GK41 T304 VE	GK41B T304/57 VE
GK64 T303 E	GK64 T303 VE	GK64B T303/57 VE	GK64 T304 E	GK64 T304 VE	GK64B T304/57 VE
GK80 T303 E	GK80 T303 VE	GK80 T303/57 VE	GK80 T304 E	GK80 T304 VE	GK80 T304/57 VE
GK100 T303 E	GK100 T303 VE	GK100 T303/57 VE	GK100 T304 E	GK100 T304 VE	GK100 T304/57 VE
GK125 T303 E	GK125 T303 VE	GK125 T303/57 VE	GK125 T304 E	GK125 T304 VE	GK125 T304/57 VE
GK160 T303 E	GK160 T303 VE	GK160 T303/57 VE	GK160 T304 E	GK160 T304 VE	GK160 T304/57 VE
GK250 T303 E	GK250 T303 VE	GK250 T303/57 VE	GK250 T304 E	GK250 T304 VE	GK250 T304/57 VE
GK315 T303 E	GK315 T303 VE	GK315 T303/57 VE	GK315 T304 E	GK315 T304 VE	GK315 T304/57 VE

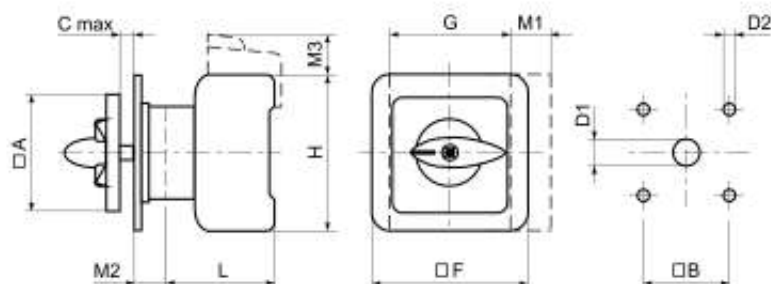
	3-pole ON-OFF switch with protection IP 65		4-pole ON-OFF switch with protection IP 65	
	Switch-disconnector	Emergency-stop switch	Switch-disconnector	Emergency-stop switch
Front mounting with max. 2 padlock	GK20A T103/04 E	GK20A T203/04 E	GK20A T104/04 E	GK20A T204/04 E
	GK32A T103/04 E	GK32A T203/04 E	GK32A T104/04 E	GK32A T204/04 E
	GK41B T103/04 E	GK41B T203/04 E	GK41B T104/04 E	GK41B T204/04 E
	GK64B T103/04 E	GK64B T203/04 E	GK64B T104/04 E	GK64B T204/04 E
	GK80 T103/04 E	GK80 T203/04 E	GK80 T104/04 E	GK80 T204/04 E
	GK100 T103/04 E	GK100 T203/04 E	GK100 T104/04 E	GK100 T204/04 E
	GK125 T103/04 E	GK125 T203/04 E	GK125 T104/04 E	GK125 T204/04 E
	GK160 T103/04 E	GK160 T203/04 E	GK160 T104/04 E	GK160 T204/04 E
Front mounting with max. 4 padlock	GK250 T103/05 E	GK250 T203/05 E	GK250 T104/05 E	GK250 T204/05 E
	GK315 T103/05 E	GK315 T203/05 E	GK315 T104/05 E	GK315 T204/05 E
Rear mounting door coupling, with max. 3 padlock	GK20B T103/65 VE	GK20B T203/65 VE	GK20B T104/65 VE	GK20B T204/65 VE
	GK32B T103/65 VE	GK32B T203/65 VE	GK32B T104/65 VE	GK32B T204/65 VE
	GK41B T103/65 VE	GK41B T203/65 VE	GK41B T104/65 VE	GK41B T204/65 VE
	GK64B T103/65 VE	GK64B T203/65 VE	GK64B T104/65 VE	GK64B T204/65 VE
	GK80 T103/65 VE	GK80 T203/65 VE	GK80 T104/65 VE	GK80 T204/65 VE
	GK100 T103/65 VE	GK100 T203/65 VE	GK100 T104/65 VE	GK100 T204/65 VE
	GK125 T103/65 VE	GK125 T203/65 VE	GK125 T104/65 VE	GK125 T204/65 VE
	GK160 T103/65 VE	GK160 T203/65 VE	GK160 T104/65 VE	GK160 T204/65 VE
	GK250 T103/65 VE	GK250 T203/65 VE	GK250 T104/65 VE	GK250 T204/65 VE
	GK315 T103/65 VE	GK315 T203/65 VE	GK315 T104/65 VE	GK315 T204/65 VE

Plastic enclosed switches with degree of protection IP 65				
3-pole ON-OFF switch with max. 3 padlock		Load switch		
Switch-disconnector	Emergency-stop switch	3-pole	4-pole	
GK20 T103/75 KL1	GK20 T203/75 KL1	GK20 T303 KL1	GK20 T304 KL1	
GK32 T103/75 KL1	GK32 T203/75 KL1	GK32 T303 KL1	GK32 T304 KL1	
GK41 T103/75 KL1	GK41 T203/75 KL1	GK41 T303 KL1	GK41 T304 KL1	
GK64 T103/75 KL1	GK64 T203/75 KL1	GK64 T303 KL1	GK64 T304 KL1	
GK80 T103/75 KL1	GK80 T203/75 KL1	GK80 T303 KL1	GK80 T304 KL1	
GK100 T103/75 KL1	GK100 T203/75 KL1	GK100 T303 KL1	GK100 T304 KL1	
GK125 T103/76 ST	GK125 T203/76 ST	GK125 T303/59 ST	GK125 T304/60 ST	
GK160 T103/76 ST	GK160 T203/76 ST	GK160 T303/59 ST	GK160 T304/60 ST	
GK250 T103/36 ST	GK250 T203/36 ST	GK250 T303/61 ST	GK250 T304/61 ST	
GK315 T103/36 ST	GK315 T203/36 ST	GK315 T303/61 ST	GK315 T304/61 ST	

Fits to 45 mm mountplate-slot 3-pole ON-OFF switches with degree of protection IP 40	
Non padlockable load switch	Switch-disconnector with max. 2 padlock
GK20A T303 VE2	GK20A T303/58 VE2
GK32A T303 VE2	GK32A T303/58 VE2
GK41 T303 VE2	GK41 T303/58 VE2
GK64 T303 VE2	GK64 T303/58 VE2
GK80 T303 VE2	GK80 T303/58 VE2
GK100 T303 VE2	GK100 T303/58 VE2

Dimensions (switch-disconnector, emergency-stop switch, load switch)

Front mounting



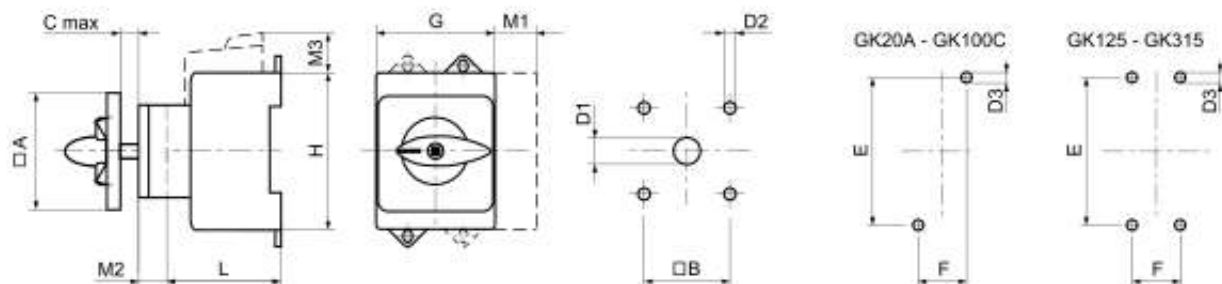
Increase of dimensions

- M1: in case of four main contacts or PE terminal or neutral wire-terminal
- M2: at use auxiliary contact
- M3: terminal with cover

	A	B	C	D1	D2	F	G	H	L	M1	M2	M3
GK20A, GK32A	48	36	4	10	4,5	48	42	54	53,8	13,5	9	20
GK20B, GK32B	64	48	4	10	4,5	64	42	54	53,8	13,5	9	20
GK41, GK64	48	36	4	10	4,5	64	50	64	60,5	16	-	16
GK41B, GK64B	64	48	4	10	4,5	64	50	64	60,5	16	12,5	16
GK80, GK100	64	48	4	10	4,5	88	70	80	70,6	22	10	25
GK80C, GK100C	88	68	4	10	6	88	70	80	70,6	22	10	25
GK125, GK160	88	68	5,5	13	6	-	112	108	96	38	21	22
GK250, GK315	88	68	5,5	13	6	-	145	126	103	52,5	21	24,5×2

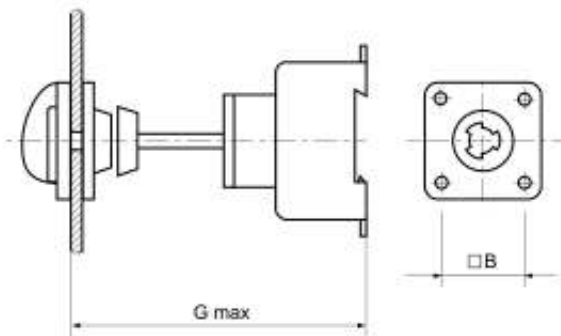
Rear mounting

Mounting dimensions of switch



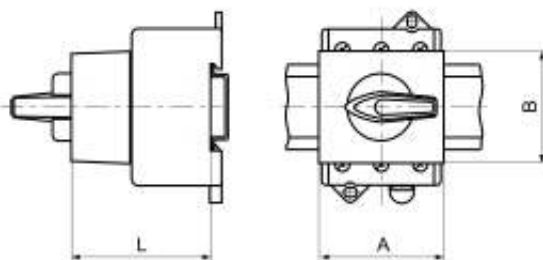
	A	B	C	D1	D2	D3	E	F	G	H	L	M1	M2	M3
GK20A, GK32A	48	36	12	8	4,5	4,5	60	22	42	54	50	13,5	9	20
GK20B, GK32B	64	48	13,5	10	4,5	4,5	60	22	42	54	50	13,5	-	20
GK41, GK64	48	36	12	10	4,5	4,5	70	25	50	64	61	16	10	16
GK41B, GK64B	64	48	13,5	10	4,5	4,5	70	25	50	64	61	16	10	16
GK80, GK100	64	48	13,5	10	4,5	6	90	25	70	80	68	22	10	25
GK80C, GK100C	88	68	13,5	10	6	6	90	25	70	80	68	22	10	25
GK125, GK160	88	68	16	13	6	7	120	36	112	108	91	38	0	22
GK250, GK315	88	68	16	13	6	7	142	44	145	126	98	52,5	0	24,5×2

Switches with door coupling



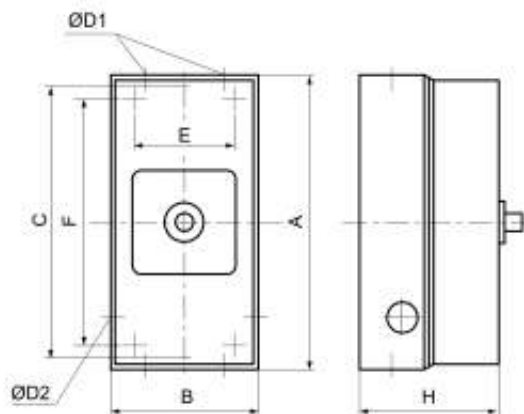
	Gmax	B
GK20B, GK32B, GK41B	190	48
GK64	330	
GK80	380	
GK100	450	
GK125, GK160	550	68
GK250, GK315		

Design fitting to 45 mm mountplate-slot



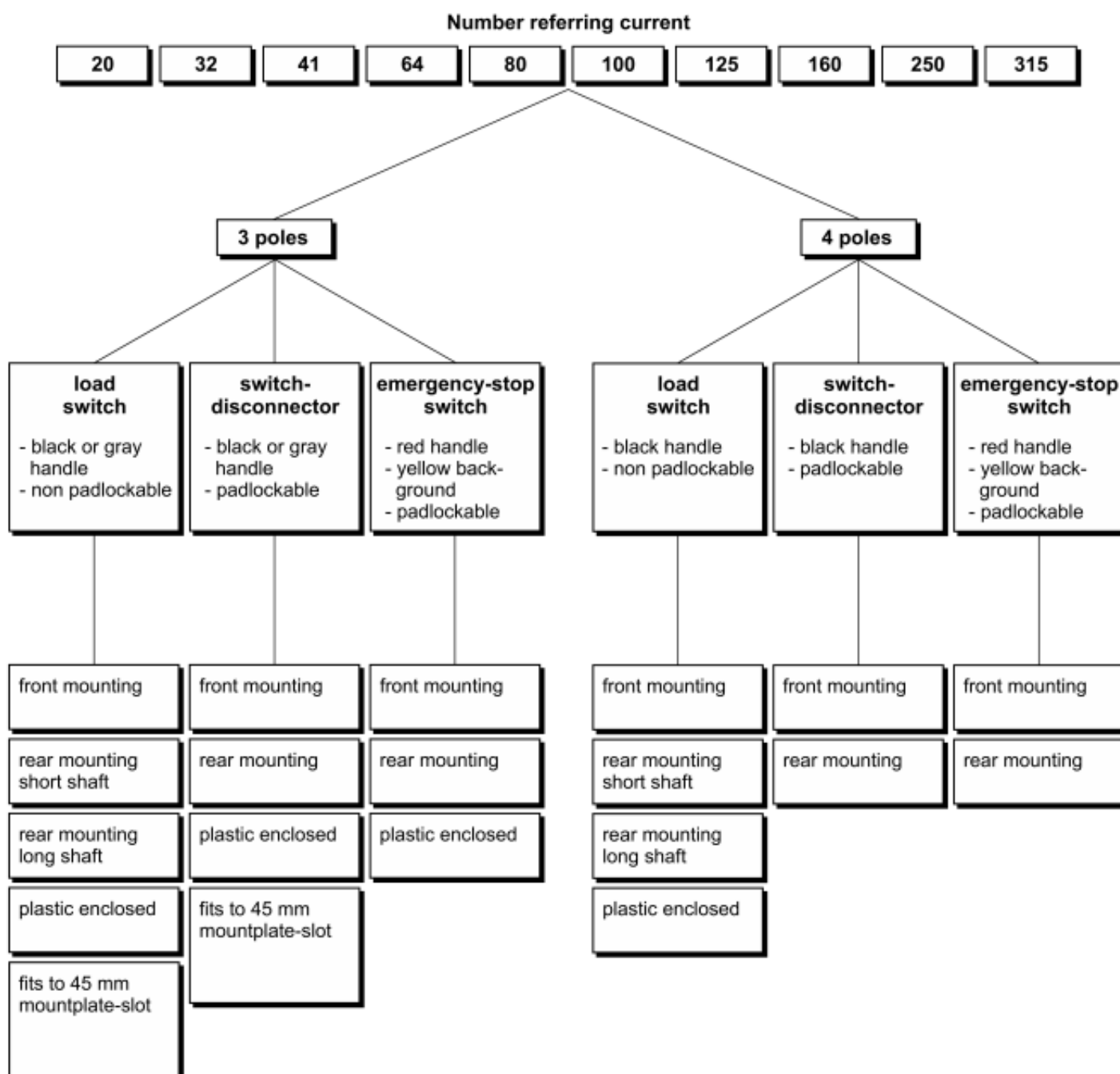
	A	B	L
GK20A, GK32A	43,7	45,4	52
GK41, GK64	52,4	45,4	59
GK80, GK100	70	45	65

Plastic enclosed switches



	A	B	C	D1	D2	E	F	H
GK20, GK32	160	85	150	2×23	19	-	-	78
GK41, GK64	190	100	178	2×29	23	-	-	91
GK80, GK100	250	145	-	2×37,5	23	124	229	100
GK125, GK160	300	200	-	2×48/1×23	-	172	272	170
GK250, GK315	380	280	-	2×61	-	254	354	180

Range of GK switches



Two chambers rotary switch with small dimensions contains four contacts. It has front mounting or rear mounting possibilities, two or three 60° switching angles.

Switching programs

Description	Front plate	Switching program N ^o	Connection diagram
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ON-OFF switches

3 Pole		6002-001	
3 Pole		6002-031	
4 Pole		6044-001	

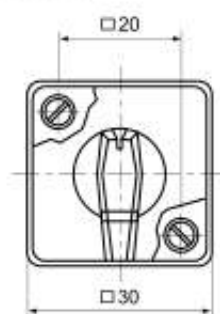
Change-over switch

2 Pole		6238-001	
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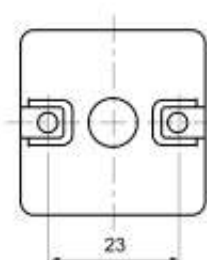
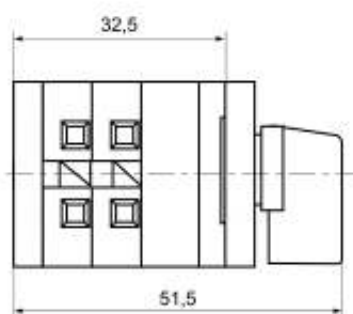
Technical data

Rated values	Insulation voltage [V]	400
	Operational voltage [V]	AC 230
	DC	24
	Thermal current [A]	4
	Operational current [A]	AC-15, 230 V 0,6
	AC-21, 230 V	4
	Conditional short-circuit current [A]	1000
	Mechanical durability [c]	0,3×10 ⁶
	Max. switching frequency [c/h]	30
	Protection class	II
	Ambient temperature [°C]	operating -5 ... +40
		storage -20...+50
	Degree of protection	IP 20
	Terminal screw	M 2,5
	Cross-section of connected wires [mm ²]	min. 0,35
		max. 2,5
	Number of chambers	2
	Number of contacts, separated electrically	4
	Fuse	6 A

Dimensions



Front mounting
with 2 pcs M2.5×12 screws
on mountplate with thickness max. 5 mm



Rear mounting
with 2 pcs Ø2.2 sheet-screws

Structure of type-sign of the KK rotary switches

Size			KK0-20	KK1-32	KK2-40	KK2-63	KK2-80	KK2-115	KK3-115	KK4-150	KK5-315
P _e [kW]			5,5	11	15	22	25	37	30	37	55
I _e [A]			20	32	40	63	80	115	115	150	315
Open	front mounting		KK0-20	KK1-32	KK2-40	KK2-63	KK2-80	KK2-115	KK3-115 ...E	KK4-150 ...E	KK5-315 ...E
	rear mounting		KK0-20 ...H	KK1-32 ...H	KK2-40 ...H	KK2-63 ...H	KK2-80 ...H	KK2-115 ...H	KK3-115 ...VE	KK4-150 ...VE	KK5-315 ...VE
mountable to installation board			KK0-20 ...EK	KK1-32 ...EK	-	-	-	-	-	-	-
Enclosed plastic IP 65			KKM0-20	KKM1-32	KKM2-40	KKM2-63	KKM2-80	KKM2-115	KKM3-100	KKM4-150	KKM5-250
IP 65 front plate			KKE-20	KKE1-32	KKE2-40	KKE2-63	KKE2-80	KKE2-115	KK3-115 ...EF	KK4-150 ...EF	KK5-315 ...EF
Lockable			KKZ0-20	KKZ1-32	-	-	-	-	-	-	-
Padlockable			KKL0-20	KKL1-32	KKL2-40	KKL2-63	KKL2-80	KKL2-115	-	-	-
Switch-disconnector			KKS0-20	KKS1-32	KKS2-40	KKS2-63	KKS2-80	KKS2-115	-	-	-
Emergency-stop switch			KKV0-20	KKV1-32	KKV2-40	KKV2-63	KKV2-80	KKV2-115	-	-	-
Door coupling	Degree of protection of front plate	IP 40	-	-	-	-	-	-	KK3... M280D...	KK4... M280D...	KK5... M280D...
		IP 54	-	-	KK2-40 ...T	KK2-63 ...T	KK2-80 ...T	KK2-115 ...T	-	-	-
		IP 65	-	-	-	-	-	-	KK3... M280D... EF	KK4... M280D... EF	KK5... M280D... EF

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