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Sample image

Datasheet

Article number: 70012026
Designation: CG4.A220.FS2-V
Description: Schalter
Contact development: A220
Face plate engraving: F072
Type of mounting: FS2-V

Type Size: S00
Classification Contact: Rigid contact bridge
Classification Contact Mat: Silver
Classification Terminal: Screw terminal

IEC 60947-3 EN 60947-3, VDE 0660 Teil 107

Rated insulation voltage Ui

Voltage (V)	*AC / DC*
440	AC / DC

Rated impulse withstand voltage Uimp

Voltage (kV)	*Overvoltage category*	*Pollution degree*	*Supply system*	*Function*
4	III	3	Valid for lines with grounded common neutral termination	switch

Rated uninterrupted current Iu/Ith

Current (A)	*Ambient temperature (°C)*	*Peak temperature (°C)*	*additional requirements*
10	55	60	Ambient temperature +55°C during 24 hours with peaks up to +60°C

Conventional enclosed thermal current Ithe

Current (A)	*Ambient temperature (°C)*	*Peak temperature (°C)*	*Additional requirements*	*No. of stages (from - to)*	*Mounting*	*Mounting size*
10	35	40	Ambient temperature +35°C during 24 hours with peaks up to +40°C	--	--	--

Rated operational current Ie

Utilization category	*Voltage (V)*	*Current (A)*
AC-15	110 - 110	2,50
AC-15	220 - 240	2,50
AC-15	380 - 440	1,50
AC-20A	440	10
AC-21A	440	10
AC-22A	220 - 440	10

Rated operational power

Utilization category	*Voltage (V)*	*No. of phases*	*No. of poles*	*Power (kW)*
AC-6b	380 - 400	3	3	--
AC-6b	220 - 230	1	2	--
AC-2	220 - 240	3	3	2,50
AC-2	380 - 440	3	3	4,50
AC-3	220 - 240	3	3	1,50
AC-3	380 - 440	3	3	2,20
AC-3	110 - 120	1	2	0,30
AC-3	220 - 240	1	2	0,55
AC-3	380 - 440	1	2	0,75
AC-4	220 - 240	3	3	0,37
AC-4	380 - 440	3	3	0,55
AC-4	110 - 120	1	2	0,15
AC-4	220 - 240	1	2	0,25
AC-4	380 - 440	1	2	0,50
AC-23A	220 - 240	3	3	1,80
AC-23A	380 - 440	3	3	3
AC-23A	110 - 120	1	2	0,37
AC-23A	220 - 240	1	2	0,75
AC-23A	380 - 440	1	2	1,10

Max Fuse Rating IEC

Fuse characteristic	*No. of Fuses*	*Current (A)*
gG	1	10

Tested AC and DC values

Utilization category / Time constant	*No. of contacts in series*	*Off or change-over switch*	*Voltage (V)*	*AC / DC*	*Current (A)*
DC-13	1	ON - OFF	24	DC	0,80
DC-13	1	ON - OFF	48	DC	0,50
DC-13	1	ON - OFF	60	DC	0,20
DC-13	2	ON - OFF	48	DC	0,80

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Tested AC and DC values					
Utilization category / Time constant	*No. of contacts in series*	*Off or change-over switch*	*Voltage (V)*	*AC / DC*	*Current (A)*
DC-13	2	ON - OFF	96	DC	0,50
DC-13	2	ON - OFF	120	DC	0,20
DC-13	3	ON - OFF	110	DC	1
DC-21A	1	ON - OFF	24	DC	10
DC-21A	1	ON - OFF	48	DC	6
DC-21A	1	ON - OFF	60	DC	5
DC-21A	1	ON - OFF	110	DC	4
DC-21A	1	ON - OFF	220	DC	0,80
DC-21A	2	ON - OFF	48	DC	10
DC-21A	2	ON - OFF	96	DC	6
DC-21A	2	ON - OFF	120	DC	5
DC-21A	2	ON - OFF	220	DC	4
DC-21A	2	ON - OFF	440	DC	0,80
DC-21A	3	ON - OFF	72	DC	10
DC-21A	3	ON - OFF	144	DC	6
DC-21A	3	ON - OFF	180	DC	5
DC-21A	3	ON - OFF	330	DC	4
DC-21A	3	ON - OFF	660	DC	0,80
DC-21A	4	ON - OFF	96	DC	10
DC-21A	4	ON - OFF	192	DC	6
DC-21A	4	ON - OFF	240	DC	5
DC-21A	4	ON - OFF	440	DC	4
DC-21A	5	ON - OFF	120	DC	10
DC-21A	5	ON - OFF	240	DC	6
DC-21A	5	ON - OFF	300	DC	5
DC-21A	5	ON - OFF	550	DC	4
DC-21A	6	ON - OFF	144	DC	10
DC-21A	6	ON - OFF	288	DC	6
DC-21A	6	ON - OFF	360	DC	5
DC-21A	6	ON - OFF	660	DC	4
DC-21A	8	ON - OFF	192	DC	10
DC-21A	8	ON - OFF	384	DC	6
DC-21A	8	ON - OFF	480	DC	5
DC-22A	1	ON - OFF	24	DC	8
DC-22A	1	ON - OFF	48	DC	5
DC-22A	1	ON - OFF	60	DC	4
DC-22A	1	ON - OFF	110	DC	1,50
DC-22A	1	ON - OFF	220	DC	0,30
DC-22A	2	ON - OFF	48	DC	8
DC-22A	2	ON - OFF	96	DC	5
DC-22A	2	ON - OFF	120	DC	4
DC-22A	2	ON - OFF	220	DC	1,50
DC-22A	2	ON - OFF	440	DC	0,30
DC-22A	3	ON - OFF	72	DC	8
DC-22A	3	ON - OFF	144	DC	5
DC-22A	3	ON - OFF	180	DC	4
DC-22A	3	ON - OFF	330	DC	1,50
DC-22A	3	ON - OFF	660	DC	0,30
DC-22A	4	ON - OFF	96	DC	8
DC-22A	4	ON - OFF	192	DC	5
DC-22A	4	ON - OFF	240	DC	4
DC-22A	4	ON - OFF	440	DC	1,50
DC-22A	5	ON - OFF	120	DC	8
DC-22A	5	ON - OFF	240	DC	5
DC-22A	5	ON - OFF	300	DC	4
DC-22A	5	ON - OFF	550	DC	1,50
DC-22A	6	ON - OFF	144	DC	8
DC-22A	6	ON - OFF	288	DC	5
DC-22A	6	ON - OFF	360	DC	4
DC-22A	6	ON - OFF	660	DC	1,50
DC-22A	8	ON - OFF	192	DC	8
DC-22A	8	ON - OFF	384	DC	5
DC-22A	8	ON - OFF	480	DC	4
DC-23A	1	ON - OFF	24	DC	7
DC-23A	1	ON - OFF	48	DC	4
DC-23A	1	ON - OFF	60	DC	3,50
DC-23A	1	ON - OFF	110	DC	1
DC-23A	1	ON - OFF	220	DC	0,20
DC-23A	2	ON - OFF	48	DC	7
DC-23A	2	ON - OFF	96	DC	4
DC-23A	2	ON - OFF	120	DC	3,50
DC-23A	2	ON - OFF	220	DC	1
DC-23A	2	ON - OFF	440	DC	0,20
DC-23A	3	ON - OFF	72	DC	7
DC-23A	3	ON - OFF	144	DC	4
DC-23A	3	ON - OFF	180	DC	3,50

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Tested AC and DC values

Utilization category / Time constant	No. of contacts in series	Off or change-over switch	Voltage (V)	AC / DC	Current (A)
DC-23A	3	ON - OFF	330	DC	1
DC-23A	3	ON - OFF	660	DC	0,20
DC-23A	4	ON - OFF	96	DC	7
DC-23A	4	ON - OFF	192	DC	4
DC-23A	4	ON - OFF	240	DC	3,50
DC-23A	4	ON - OFF	440	DC	1
DC-23A	5	ON - OFF	120	DC	7
DC-23A	5	ON - OFF	240	DC	4
DC-23A	5	ON - OFF	300	DC	3,50
DC-23A	5	ON - OFF	550	DC	1
DC-23A	6	ON - OFF	144	DC	7
DC-23A	6	ON - OFF	288	DC	4
DC-23A	6	ON - OFF	360	DC	3,50
DC-23A	6	ON - OFF	660	DC	1
DC-23A	8	ON - OFF	192	DC	7
DC-23A	8	ON - OFF	384	DC	4
DC-23A	8	ON - OFF	480	DC	3,50

Rated conditional short-circuit current

Current (kA)	Text	cut-off current Ic (kA)	Durchlassenergie I²t (kA²s)
3	--	0,82	0,19

Rated short-circuit making capacity Icm

Current (A)
200

UL60947-4-1 , UL508

Nominal Voltage

Voltage (V)	AC / DC
300	AC

Rated insulation voltage Ui

Voltage (V)	AC / DC
300	AC

Rated thermal current

Current (A)	Ambient temperature (°C)	Additional Text
10	0 - 40	--

Horsepower rating

Across-the-Line Motor Starting	Voltage (V)	No. of phases	No. of poles	Power (HP)
DOL	110 - 120	1	2	0,33
DOL	220 - 240	1	2	0,75
DOL	277 - 277	1	2	0,75
DOL	110 - 120	3	3	0,75
DOL	220 - 240	3	3	1

Pilot duty rating code

Duty Code
A300

Temp. rating of wire

Temperature rating (°C)	Current (A)	Text
60 - 75	--	--

General Use

AC / DC	Voltage (V)	Current (A)	No. of phases	No. of poles	No. of contacts in series
AC	120	10	1	1	1
AC	300	10	1	2	1
AC	300	10	3	3	1

CSA

Nominal Voltage

Voltage (V)	AC / DC
300	AC

Rated insulation voltage Ui

Voltage (V)	AC / DC
300	AC

Rated thermal current

Current (A)	Ambient temperature (°C)	Additional Text
10	0 - 40	--

Horsepower rating

Across-the-Line Motor Starting	Voltage (V)	No. of phases	No. of poles	Power (HP)
DOL	110 - 120	1	2	0,33
DOL	220 - 240	1	2	0,75
DOL	277 - 277	1	2	0,75
DOL	110 - 120	3	3	0,75
DOL	220 - 240	3	3	1

Pilot duty rating code

Duty Code
A300

Temp. rating of wire

Temperature rating (°C)	Current (A)	Text
75	--	--

General Use

AC / DC	Voltage (V)	Current (A)	No. of phases	No. of poles	No. of contacts in series
AC	120	10	1	1	1

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General Use

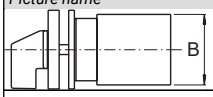
AC / DC	Voltage (V)	Current (A)	No. of phases	No. of poles	No. of contacts in series
AC	300	10	1	2	1
AC	300	10	3	3	1

MASTER DATA

Max. number of stages

number of stages	Modul
8	FL

Switch Measures

Picture name	B	F	H	H1	H2	H3
	28	--	--	--	--	--

GENERAL TECHNICAL INFORMATION

Tightening torque of screws

tightening torque (Nm)	tightening torque (lb-in)
0,40	3,50

Tested AC and DC values

Utilization category / Time constant	No. of contacts in series	Off or change-over switch	Voltage (V)	AC / DC	Current (A)
T≤1ms	1	ON - OFF	24	DC	10
T≤1ms	1	ON - OFF	48	DC	6
T≤1ms	1	ON - OFF	60	DC	2,50
T≤1ms	1	ON - OFF	110	DC	0,70
T≤1ms	1	ON - OFF	220	DC	0,30
T≤1ms	1	ON - OFF	440	DC	0,20
T≤1ms	2	ON - OFF	48	DC	10
T≤1ms	2	ON - OFF	95	DC	6
T≤1ms	2	ON - OFF	120	DC	2,50
T≤1ms	2	ON - OFF	220	DC	0,70
T≤1ms	2	ON - OFF	440	DC	0,30
T≤1ms	2	ON - OFF	660	DC	0,20
T≤1ms	3	ON - OFF	70	DC	10
T≤1ms	3	ON - OFF	140	DC	6
T≤1ms	3	ON - OFF	180	DC	2,50
T≤1ms	3	ON - OFF	330	DC	0,70
T≤1ms	3	ON - OFF	660	DC	0,30
T≤1ms	4	ON - OFF	95	DC	10
T≤1ms	4	ON - OFF	190	DC	6
T≤1ms	4	ON - OFF	240	DC	2,50
T≤1ms	4	ON - OFF	440	DC	0,70
T≤1ms	5	ON - OFF	120	DC	10
T≤1ms	5	ON - OFF	240	DC	6
T≤1ms	5	ON - OFF	300	DC	2,50
T≤1ms	5	ON - OFF	550	DC	0,70
T≤1ms	6	ON - OFF	145	DC	10
T≤1ms	6	ON - OFF	290	DC	6
T≤1ms	6	ON - OFF	360	DC	2,50
T≤1ms	6	ON - OFF	660	DC	0,70
T≤1ms	8	ON - OFF	190	DC	10
T≤1ms	8	ON - OFF	350	DC	6
T≤1ms	8	ON - OFF	450	DC	2,50
T=50ms	1	ON - OFF	24	DC	6
T=50ms	1	ON - OFF	30	DC	3
T=50ms	1	ON - OFF	48	DC	1
T=50ms	1	ON - OFF	60	DC	0,70
T=50ms	1	ON - OFF	110	DC	0,30
T=50ms	2	ON - OFF	48	DC	6
T=50ms	2	ON - OFF	60	DC	3
T=50ms	2	ON - OFF	95	DC	1
T=50ms	2	ON - OFF	120	DC	0,70
T=50ms	2	ON - OFF	220	DC	0,30
T=50ms	3	ON - OFF	70	DC	6
T=50ms	3	ON - OFF	90	DC	3
T=50ms	3	ON - OFF	140	DC	1
T=50ms	3	ON - OFF	180	DC	0,70
T=50ms	3	ON - OFF	330	DC	0,30
T=50ms	4	ON - OFF	95	DC	6
T=50ms	4	ON - OFF	120	DC	3
T=50ms	4	ON - OFF	190	DC	1
T=50ms	4	ON - OFF	240	DC	0,70
T=50ms	4	ON - OFF	440	DC	0,30
T=50ms	5	ON - OFF	120	DC	6
T=50ms	5	ON - OFF	150	DC	3
T=50ms	5	ON - OFF	240	DC	1
T=50ms	5	ON - OFF	300	DC	0,70
T=50ms	5	ON - OFF	550	DC	0,30
T=50ms	6	ON - OFF	145	DC	6

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Tested AC and DC values

Utilization category / Time constant	No. of contacts in series	Off or change-over switch	Voltage (V)	AC / DC	Current (A)
T=50ms	6	ON - OFF	180	DC	3
T=50ms	6	ON - OFF	290	DC	1
T=50ms	6	ON - OFF	360	DC	0,70
T=50ms	6	ON - OFF	660	DC	0,30
T=50ms	8	ON - OFF	190	DC	6
T=50ms	8	ON - OFF	240	DC	3
T=50ms	8	ON - OFF	350	DC	1
T=50ms	8	ON - OFF	450	DC	0,70

Stripping length

Length (mm)	--
6	STRIPPINGLENGTH

Minimal ratings (voltage/current)

Voltage (V)	Current (mA)	Environment conditions	Environment conditions 2	Environment conditions 3
20	5	Ambient air must be free of particular contamination with sulfur and/or sulfurous components such as H2S etc.	In case extraordinary contamination with dust is expected an adequate dust protection is required.	--

Rated short-time withstand current Icw

Time (s)	Current (A)
1	90

Size of conductor

composition of conductor	Min. / Max. value	No. of conductor per terminal	Cross section (mm²) or (AWG/kcmil)	Material of the wire
solid wire	Min.	1	0.5mm²	Copper
solid wire	Min.	2	0.5mm²	Copper
flexible wire	Min.	1	0.75mm²	Copper
flexible wire	Min.	2	0.75mm²	Copper
flexible wire	Max.	2	AWG 16	Copper
flexible wire	Max.	2	1.5mm²	Copper
Single-core or stranded wire	Max.	2	AWG 14	Copper
Single-core or stranded wire	Max.	2	1.5mm²	Copper
flexible wire with ferrule according to DIN 46228	Max.	2	1mm²	Copper
flexible wire with ferrule according to DIN 46228	Min.	1	0.5mm²	Copper
flexible wire with ferrule according to DIN 46228	Min.	2	0.5mm²	Copper

Approbations

Specification	Marking
EAC	
CE marking	
UK Directives	
IEC 60947-3; EN 60947-3; VDE 0660 Teil107	IEC 60947-3 EN 60947-3
UL 60947-4-1; CSA C22.2 No. 60947-4-1	c UL us LISTED 77B7
CSA C.22.2 No.14	
GB/T14048.3	GB/T14048.3

Power loss per pole

Power (W)
0,40

Mechanical life

No. of operations	Ambient temperature (°C)	Number of stages	Limitations
1000000	-5 - 55	--	Valid for manual operation. Valid for switches without optional extras. The value refers to the mechanics of the device, for lifetime of the electrical contacts please refer to "electrical life values".
150000	-25 - 55	8	Valid for manual operation. Valid for switches without optional extras. The value refers to the mechanics of the device, for lifetime of the electrical contacts please refer to "electrical life values".

Electrical life (B10-Value)

Utilization category	cos(φ)	Time constant (ms)	Voltage (V)	Current (A)	No. of operations	number of series contacts	AC/DC	No. of phases	No. of poles
--	0,59	--	122	10	50000	1	AC	1	1
--	0,59	--	220	5	150000	1	AC	1	1
--	0,59	--	220	10	25000	1	AC	1	1
--	0,95	--	220	10	25000	1	AC	1	1
--	0,65	--	380	5	100000	1	AC	1	1
AC-3	--	--	440	7	150000	1	AC	3	3

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Electrical life (B10-Value)

Utilization category	cos(φ)	Time constant (ms)	Voltage (V)	Current (A)	No. of operations	number of series contacts	AC/DC	No. of phases	No. of poles
AC-23	--	--	440	10	25000	1	AC	3	3
--	--	1	24	10	140000	1	DC	1	1
--	--	1	48	6	50000	1	DC	1	1
--	--	1	60	2,50	200000	1	DC	1	1
--	--	1	110	0,70	100000	1	DC	1	1
--	--	1	220	0,30	200000	1	DC	1	1
--	--	48	24	0,25	400000	1	DC	1	1
--	--	50	24	0,50	100000	1	DC	1	1
--	--	50	24	1	50000	1	DC	1	1
--	--	50	24	6	10000	1	DC	1	1
--	--	50	30	3	20000	1	DC	1	1
--	--	50	48	1	50000	1	DC	1	1
--	--	50	110	0,30	75000	1	DC	1	1
--	--	50	110	0,50	50000	1	DC	1	1
--	--	53	110	0,10	200000	1	DC	1	1
--	--	55	110	1	25000	1	DC	1	1

Recommended screw driver

Type of screw driver	Value
Cross Screwdriver	PH1
Flat blade	0,6x3,5

Degree of protection

IP - Code switch terminal
IP20

Conditions during transport and storing

Minimum temperature (°C)	Maximum temperature (°C)	additional requirements
-40	85	In case of temperatures below -5°C no shock load permissible

Shock / Vibration

Type of oscillation	Values
Resistance to shock	min. 5g, 30ms

General Information

Text

- Do not lubricate or treat contacts.
- Switches may only be mounted, connected and set into operation by qualified persons according to the accepted rules of technology.
- Use copper wire only. Do not coat the wire end with tin.
- Terminals with factory fitted jumper links are tightened during production. Take care during installation to ensure factory fitted links are not lost by undoing both sides of linked terminals. After wiring, all terminal screws must be tightened to recommended torque specifications.
- After installation of the switches the spacings between the terminals must be sufficient to fulfill the requirement of the applicable standards.

Creepage distance

Distance (mm)
6,35

Clearance

Distance (mm)
6,35

Distance of stages

Distance (mm)
12

Operating temperature

Min. Temperature [°C]	Max. Temperature [°C]
-25	60

Waste Electrical & Electronic Equipment (WEEE)

Picture name	Description
	Do not throw in the trash as care must be taken to ensure environmentally sound disposal and recycling. Please either use an environmentally friendly waste disposal company; return to the supplier for disposal; or return direct to the manufacturer, Kraus & Naimer. You can find local Kraus & Naimer offices at www.krausnaimer.com

Proposition 65

Picture name	Description
	WARNING: This product can expose you to chemicals including nickel and lead, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

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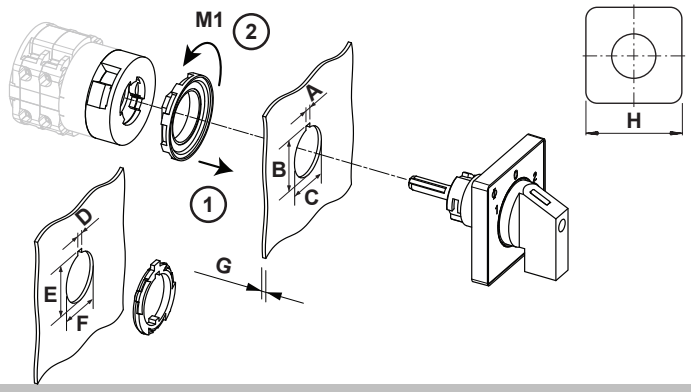
Mounting-FS2-V



IP - Code front side		IP66, IP67, IP69k
Stages		1,00 - 8,00
A	H	1,70 mm
A+_tol.	H	0,20 mm
A-_tol.	H	0,00 mm
B	H	17,90 mm
B+_tol.	H	0,20 mm
B-_tol.	H	0,00 mm
C	Ø	16,20 mm
C+_tol.	Ø	0,20 mm
C-_tol.	Ø	0,00 mm
D	H	3,20 mm
D+_tol.	H	0,20 mm
D-_tol.	H	0,00 mm
E	H	24,10 mm
E+_tol.	H	0,40 mm
E-_tol.	H	0,00 mm
F	Ø	22,30 mm
F+_tol.	Ø	0,40 mm
F-_tol.	Ø	0,00 mm
G	H	<= 5,00 mm
H	H	30,00 mm
M1	M	0,70 Nm

Wiring diagram

CG4.A220.FS2-V

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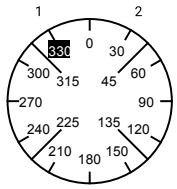
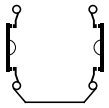
Face Plate





	1	3	5	7	9	11	13	15	17	19	21	23
	2	4	6	8	10	12	14	16	18	20	22	24
Switching Angle 60												
Total switching Angle 60												
1 330	■											
345												
0												
15												
2 30		■										
45												
60												
75												
90												
105												
120												
135												
150												
165												
180												
195												
210												
225												
240												
255												
270												
285												
300												
315												

Version: 106

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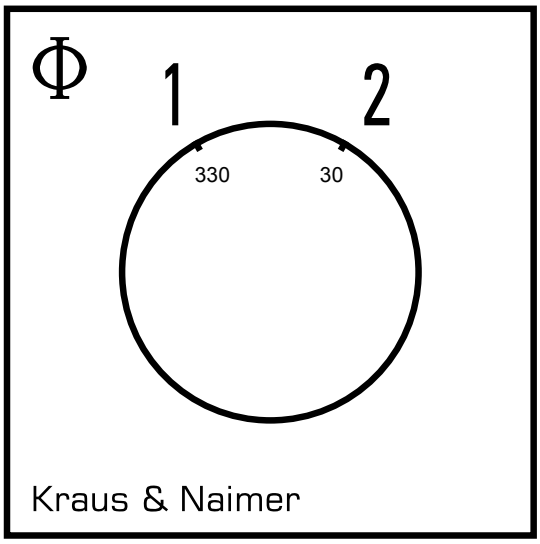
Face plate

S00.F072/A10.E1



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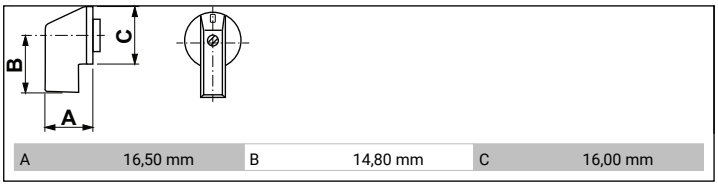
HANDLES

Designation: S00.G251
Handle colour: "1" black



A	16,50 mm	B	14,80 mm	C	16,00 mm