

Low-Voltage Fuse Systems

Cylindrical Fuse Systems

Product overview

Overview

Cylindrical fuse links gG



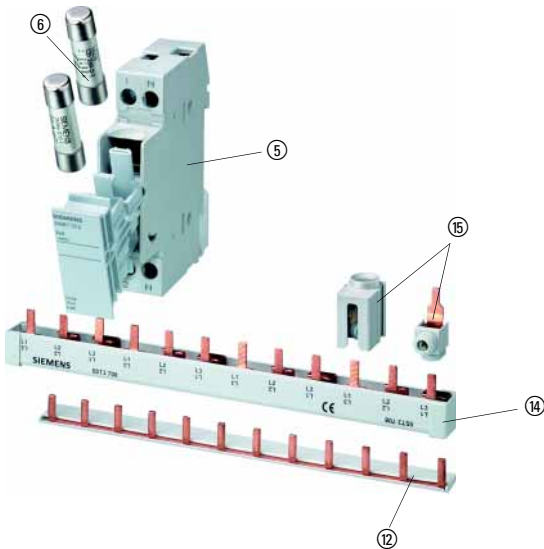
- Rated voltage U_n 400/500 V AC
- Rated current I_n 0.5 ... 100 A
- gG operational class
- Sizes 8 mm x 32 mm, 10 mm x 38 mm, 14 mm x 51 mm and 22 mm x 58 mm

Bases for cylindrical fuses



- Rated voltage U_n 400/690 V AC
- Rated current I_n 0.5 ... 100 A
- For sizes 8 mm x 32 mm, 10 mm x 38 mm, 14 mm x 51 mm and 22 mm x 58 mm
- Versions with signal detector
- Optional mountable auxiliary switch (for sizes 14 x 51, 22 x 58)

New cylinder fuse bases 8 x 32 and 10 x 38



- Mounting depth 70 mm
- Touch-protection according to BGV A3
- (VBG4)
- Size 8 x 32 and 10 x 38
- For rail mounting
- Anti-slip terminal at incoming and outgoing feeder
- For busbar mounting
- Sealable fuse holder
- With draw-out technology for safe, no-voltage changing of fuse links

⑤ Cylinder fuse bases, size 8 x 32 and 10 x 38

⑥ Cylindrical fuse link 8 x 32 or 10 x 38

⑫ Busbar, 1-pole for L or N

⑭ Busbar, 3-pole

⑮ Terminals (optional)

Benefits

Application

Cylindrical fuses are used internationally for line protection (gG operational class), for protection of switching devices in motor circuits (aM operational class) and for the protection of power semiconductors (operational class aR). The design is used all over the world.

Disconnectors

Cylinder fuse bases are disconnectors that cannot be switched under load.

VDE mark

Cylindrical fuses are not included in the standard DIN VDE 0636-201, the German version of IEC 60269-2-1, so that this design was not awarded the VDE mark.

Safety

No-voltage changing of the fuse links.

Signal detector

When a fuse link fails, an LED in the window of the fuse link flashes.

Application information

Cylindrical fuses are contained in the current European and international set of standards (EN/IEC), but not in the German standard DIN VDE.

They are not therefore VDE-certified.

In Germany, cylindrical fuses are not certified for any household applications, etc. (operation by ordinary persons)

Usage in Germany is restricted to industrial plants and control cabinets where fuses are changed by skilled or trained personnel. These restrictions do not of course apply to plants and machines that are destined for export.

Much broader use is possible in other European countries, such as Italy, Spain, Portugal and France, where these fuses are included in the national set of standards.

Protection of semiconductor devices:

The cylindrical versions of SITOR fuses are used for the protection of semiconductor devices.

The 3NW7... cylinder fuse bases listed in this section are only conditionally suitable for this application:





10x38 to 10A, 14x51 to 10A, 22x58 to 50A.

They are not designed to handle the considerably higher power loss of SITOR fuses (for SITOR fuse bases/switch disconnectors, see chapter "Semiconductor fuses").

Technical specifications

Type		3NW6 3..	3NW6 0..	3NW6 1..	3NW6 2..
Sizes	mm x mm	8 x 32	10 x 38	14 x 51	22 x 58
Standards		IEC 60269-1, -2, -2-1 NF C 60-200, 63-210, 63-211 NBN C 63269-2 and -2-1 CEI 32-4, -12			
Operational class		gG			
Rated voltages U_n	V AC	400 or 500 (see Selection and ordering data)			
Rated current I_n	A	0.5 ... 100			
Rated breaking capacity	kA AC	100, but 400 V versions: 20			
Mounting positions		any, but preferably vertical			

Selection and ordering data

	Sizes mm x mm	I_n A	U_n V AC	gG operational class	Weight 1 unit approx. kg	PS* P. unit Units
				Order No.		
Cylindrical fuse links						
	8 x 32	2	400	3NW6 302-1	0.004	10
		4		3NW6 304-1		
		6		3NW6 301-1		
		10		3NW6 303-1		
		16		3NW6 305-1		
		20		3NW6 307-1		
	10 x 38	2	500	3NW6 002-1	0.008	10
		4		3NW6 004-1		
		6		3NW6 001-1		
		8		3NW6 008-1		
		10		3NW6 003-1		
		12		3NW6 006-1		
		16		3NW6 005-1		
		20		3NW6 007-1		
		25		3NW6 010-1		
		32		3NW6 012-1		
	14 x 51	4	500	3NW6 104-1	0.019	10
		6		3NW6 101-1		
		8		3NW6 108-1		
		10		3NW6 103-1		
		12		3NW6 106-1		
		16		3NW6 105-1		
		20		3NW6 107-1		
		25		3NW6 110-1		
		32		3NW6 112-1		
		40		3NW6 117-1		
50	3NW6 120-1					
	22 x 58	8	500	3NW6 208-1	0.051	10/100
		10		3NW6 203-1		
		12		3NW6 206-1		
		16		3NW6 205-1		
		20		3NW6 207-1		
		25		3NW6 210-1		
		32		3NW6 212-1		
		40		3NW6 217-1		
		50		3NW6 220-1		
		63		3NW6 222-1		
80	3NW6 224-1					
100	3NW6 230-1	400	0.051	10		

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Cylindrical Fuse Systems

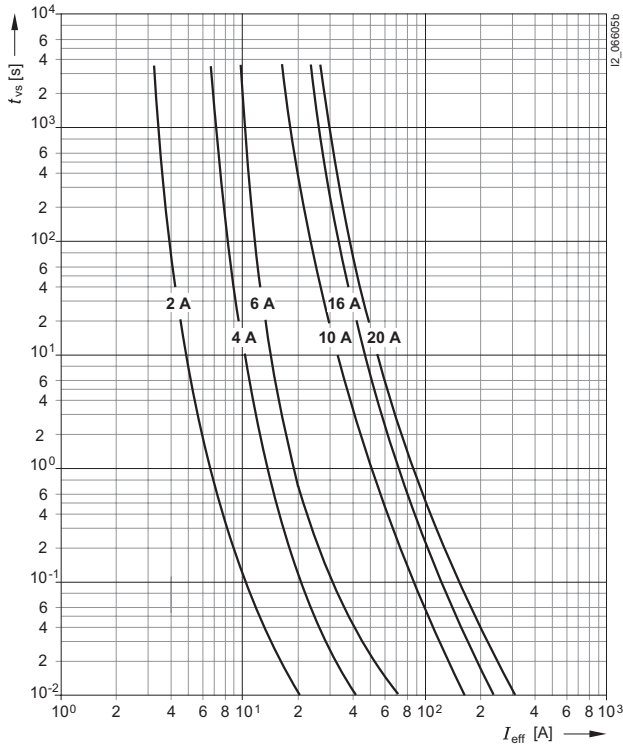
Cylindrical fuse links gG

Characteristic curves

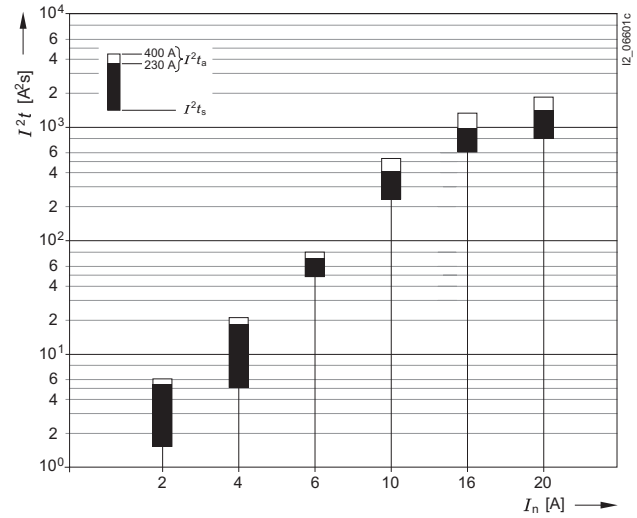
Series 3NW6 30.-1

Size: 8 mm × 32 mm
 Operational class: gG
 Rated voltage: 400 V AC
 Rated current: 2 ... 20 A

Time/current characteristics diagram

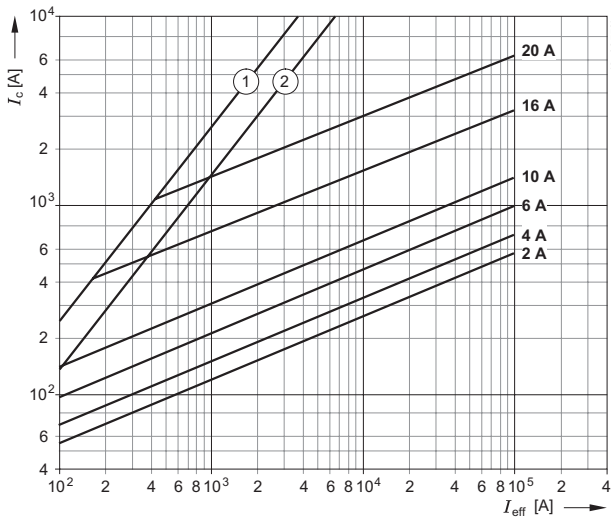


Melting I^2t_s values diagram



Type	I_n A	P_v W	$\Delta\vartheta$ K	I^2t_s 1 ms A^2s	I^2t_a 400 V AC A^2s
3NW6 302-1	2	2	27	1.6	6
3NW6 304-1	4	1.5	19	5	21
3NW6 301-1	6	1.5	20.5	48	85
3NW6 303-1	10	0.7	15	230	530
3NW6 305-1	16	1.1	29	600	1400
3NW6 307-1	20	1.7	34.5	790	1800

Current limitation diagram

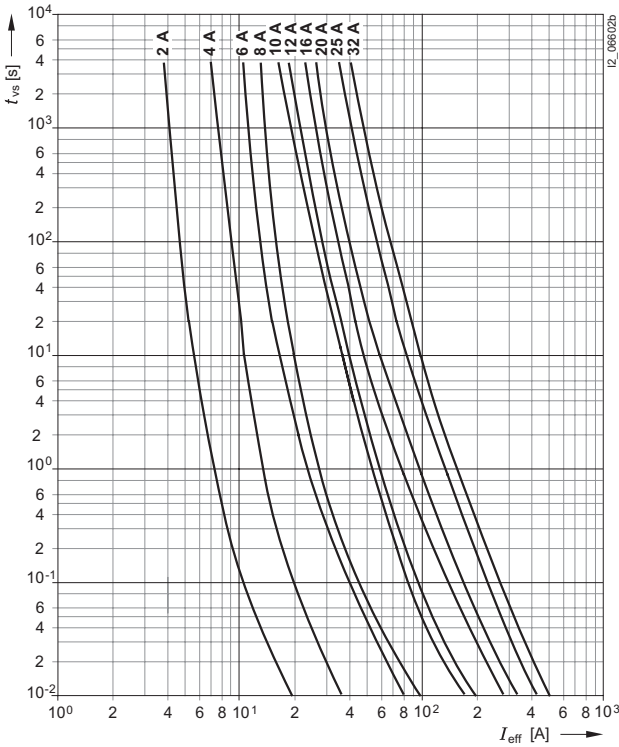


- ① Peak short-circuit current with largest DC component
- ② Peak short-circuit current without DC component

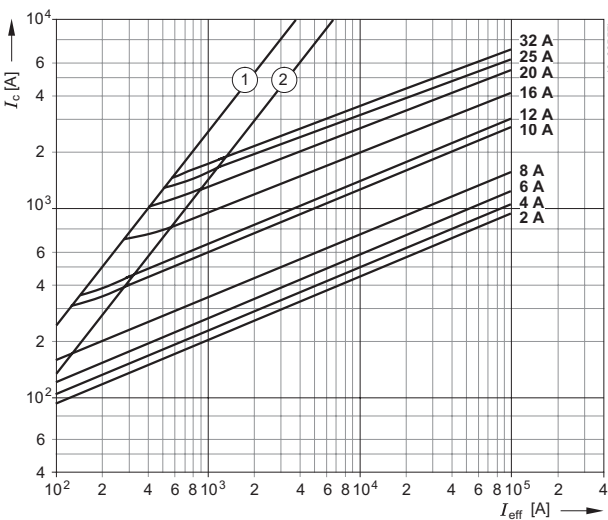
Series 3NW6 0

Size: 10 mm × 38 mm
 Operational class: gG
 Rated voltage: 500 V AC (2 ... 25 A)
 400 V AC (32 A)
 Rated current: 2 ... 32 A

Time/current characteristics diagram

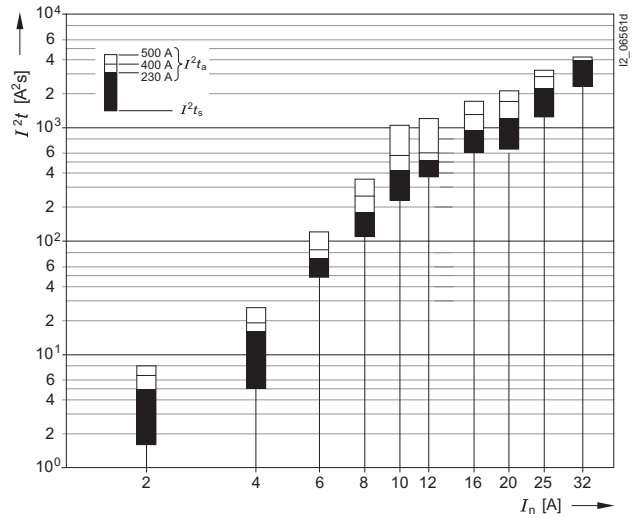


Current limitation diagram



- ① Peak short-circuit current with largest DC component
- ② Peak short-circuit current without DC component

Melting I^2t_s values diagram



Type	I_n	P_v	$\Delta\vartheta$	I^2t_s	I^2t_a		
	A	W	K	1 ms A ² s	230 V AC A ² s	400 V AC A ² s	500 V AC A ² s
3NW6 002-1	2	2.2	32	1.6	5	6.5	8
3NW6 004-1	4	1.2	16.5	5	16	19	26
3NW6 001-1	6	1.6	23	48	70	84	120
3NW6 008-1	8	2.3	35	110	180	140	350
3NW6 003-1	10	0.7	16	230	420	570	1050
3NW6 006-1	12	0.9	33	390	510	600	1200
3NW6 005-1	16	1.3	38	600	950	1300	1700
3NW6 007-1	20	2.1	51.5	640	1200	1700	2100
3NW6 010-1	25	2.1	54	1300	2200	2800	3200
3NW6 012-1	32	2.5	51	2360	4000	4200	—

Low-Voltage Fuse Systems

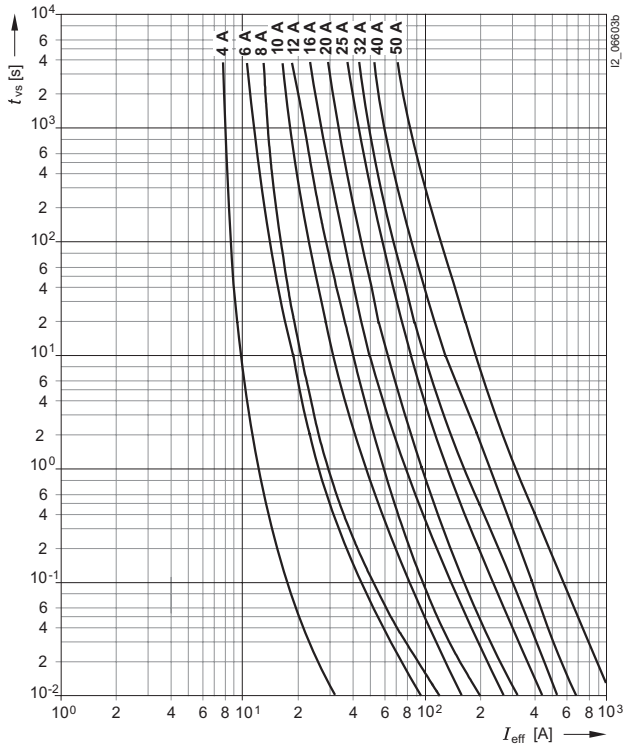
Cylindrical Fuse Systems

Cylindrical fuse links gG

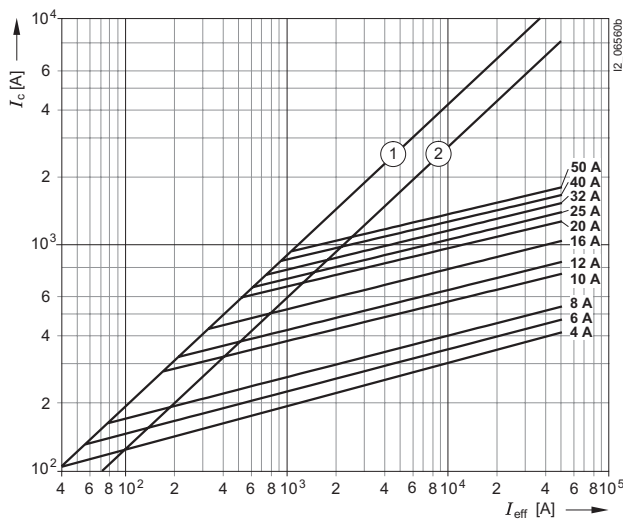
Series 3NW6 1

Size: 14 mm × 51 mm
 Operational class: gG
 Rated voltage: 500 V AC (4 ... 40 A)
 400 V AC (50 A)
 Rated current: 4 ... 50 A

Time/current characteristics diagram

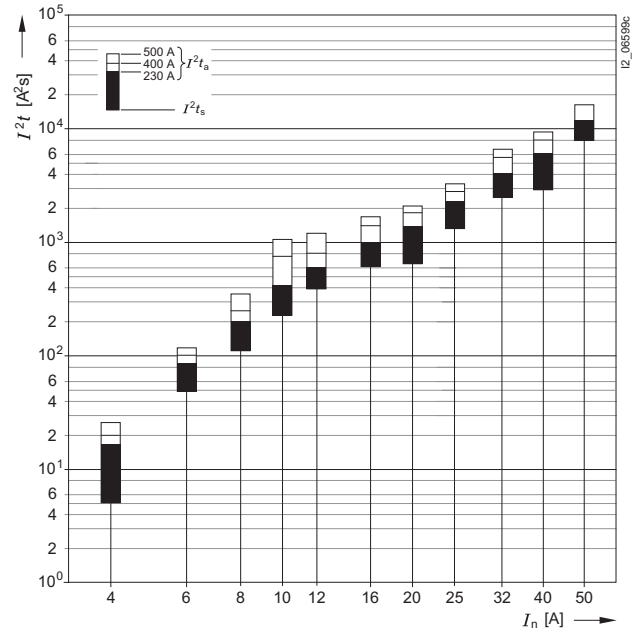


Current limitation diagram



- ① Peak short-circuit current with largest DC component
- ② Peak short-circuit current without DC component

Melting I^2t_s values diagram

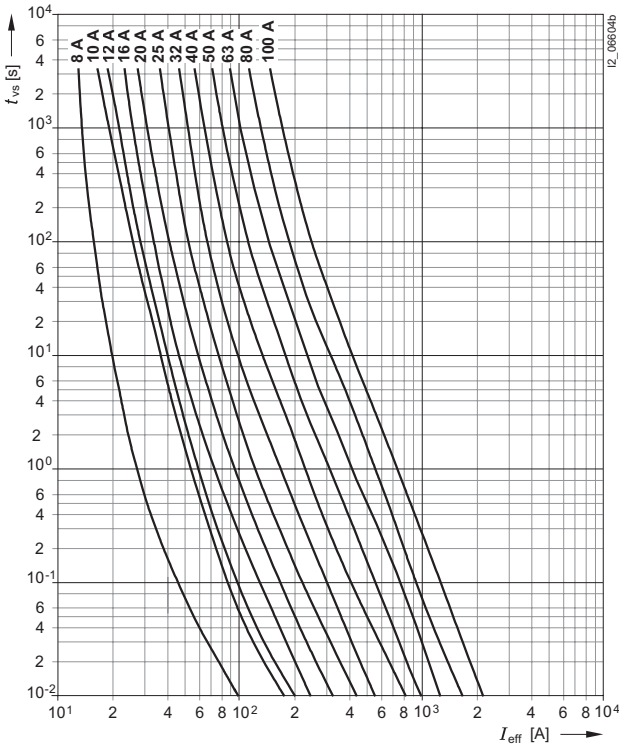


Type	I_n	P_v	$\Delta\vartheta$	I^2t_s	I^2t_a		
	A	W	K	1 ms A ² s	230 V AC A ² s	400 V AC A ² s	500 V AC A ² s
3NW6 104-1	4	1.9	19	5	16	20	26
3NW6 101-1	6	2.5	25	48	85	100	120
3NW6 108-1	8	2.4	18	110	200	250	350
3NW6 103-1	10	0.8	12	230	420	750	1050
3NW6 106-1	12	1.0	16	390	600	800	1200
3NW6 105-1	16	1.6	27	600	1000	1400	1700
3NW6 107-1	20	2.3	32.5	670	1400	1800	2100
3NW6 116-1	25	2.2	31.5	1300	2300	2800	3200
3NW6 112-1	32	3.2	39.5	2500	4100	5500	6500
3NW6 117-1	40	4.5	48	3600	6100	8000	9200
3NW6 120-1	50	4.8	55	8000	12200	16000	—

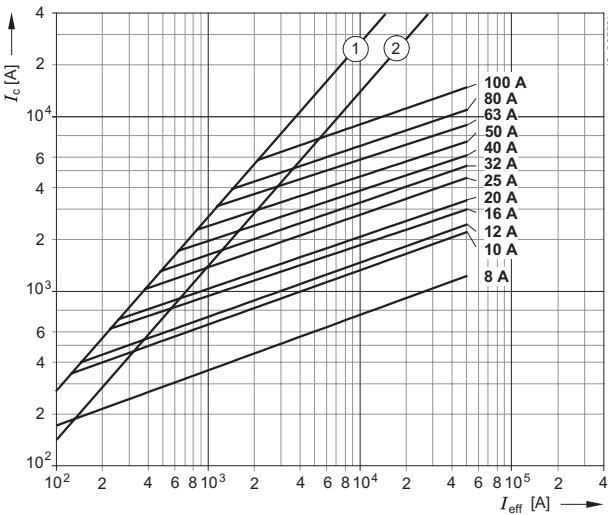
Series 3NW6 2

Size: 22 mm × 58 mm
 Operational class: gG
 Rated voltage: 500 V AC (8 ... 80 A)
 400 V AC (100 A)
 Rated current: 8 ... 100 A

Time/current characteristics diagram

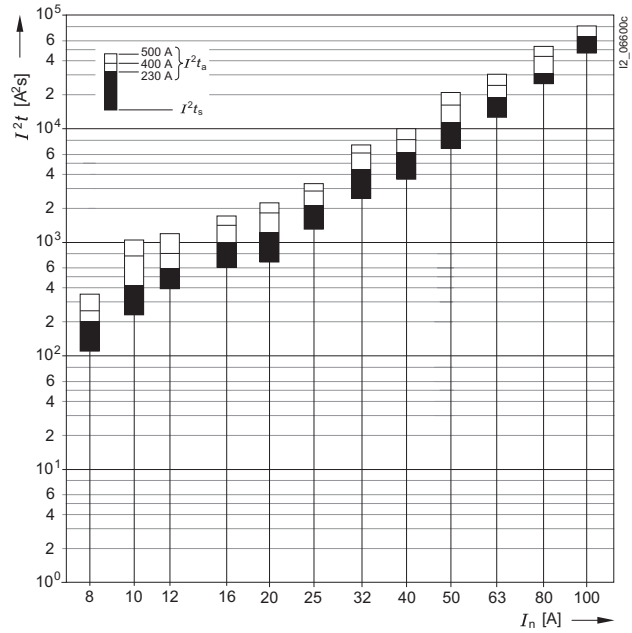


Current limitation diagram



- ① Peak short-circuit current with largest DC component
- ② Peak short-circuit current without DC component

Melting I^2t_s values diagram



Type	I_n	P_v	$\Delta\vartheta$	I^2t_s	I^2t_a		
	A	W	K	1 ms A ² s	230 V AC A ² s	400 V AC A ² s	500 V AC A ² s
3NW6 208-1	8	2.5	15	110	200	170	350
3NW6 203-1	10	0.9	10.5	230	420	760	1050
3NW6 206-1	12	1.1	12	390	600	800	1200
3NW6 205-1	16	1.6	14.5	600	1000	1400	1700
3NW6 207-1	20	2.4	22.5	670	1200	1800	2200
3NW6 210-1	25	2.7	24	1300	2100	2800	3300
3NW6 212-1	32	3.2	28	2450	4400	6100	7200
3NW6 217-1	40	4.9	35	3600	6200	8000	10000
3NW6 220-1	50	5.9	46	6800	11400	16200	20600
3NW6 222-1	63	6.8	48	12500	18800	24000	30000
3NW6 224-1	80	7.5	48	24700	30500	43000	52500
3NW6 230-1	100	8.4	55	46000	64700	80000	–

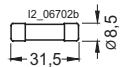
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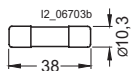
Cylindrical fuse links gG

Dimensional drawings

3NW6 3



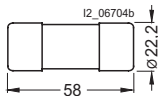
3NW6 0



3NW6 1



3NW6 2



Function

Cylinder fuse bases belong to the fuse disconnecter product range. They are not suitable for switching loads. These devices are used in cylindrical fuse links with gG operational class, for cable and line protection, and with aM operational class for the protection of motor circuits. The cylinder fuse bases are available in the standard sizes 8 x 32, 10 x 38, 14 x 51 and 22 x 58. The first value designates the diameter of the fuse link, the second the length, both values are in mm. The devices are available with the following poles for each product range:

- 1-pole
- 1-pole + N
- 2-pole
- 3-pole
- 3-pole + N

The devices are also available with or without signal detector. For the versions with signal detector, a small electronic device with LED is located behind an inspection window in the knob. If the inserted fuse link is tripped and the line is load-free, this is indicated by the LED flashing.

New cylinder fuse bases 8 x 32 and 10 x 38

These product series offer the following innovative modifications:

- The devices with 1 + N poles are only available in 1 modular width (MW). This saves 1 MW in mounting space compared to the previous version, i.e. a 50 % reduction in space requirements.

- As well as the 1 + N device, a 3 + N device is also available. No additional modular width is required for this N pole either. Thus offering a 25 % reduction in space requirements.
- The new devices can also accommodate a spare fuse link, which can also help save time and money.
- The new series of cylinder fuse bases with signal detector will be available soon.

Installation



The devices are fastened by snapping onto standard mounting rails. The infeed can be from the top or the bottom. Because the switch disconnectors are fitted with the same anti-slip terminals at the top and the bottom, the devices can also be rail-mounted at the top or bottom.

auxiliary switches

For the cylinder fuse bases in sizes 14 x 51 and 22 x 58 auxiliary switches are available. These are simply clipped onto the base using the factory-fitted brackets.

The auxiliary switches support remote display of fuse failure. However this assumes that Striker fuse links are used (not currently included in our product range). When the fuse is tripped, a small striking pin – the striker – shoots out of the front of the fuse. Over an armature link in the auxiliary switch, the kinetic energy of this hammer is used to switch a mini switch, which then initializes this signal over a floating contact.

Technical specifications
























Type		3NW7 3.2 3NW7 3.3	3NW7 0.2 3NW7 0.3	3NW7 1..	3NW7 2..
Sizes	mm x mm	8 x 32	10 x 38	14 x 51	22 x 58
Standards		IEC 60269-1, -2, -2-1 NF C 60-200, 63-210, 63-211 NBN C 63269-2en-2-1 CEI 32-4, -12			
UL Approval		--			--
CSA Approval		--			--
Rated voltage U_n	V AC	400	690		
Rated voltage acc. to UL/CSA	V AC	400	600		
Rated current I_n	A AC	20	32	50	100
Rated breaking capacity	kA	20	100		
Breaking capacity		AC 20B (switching without load), DC 20B			
Operational classes					
No-voltage changing of fuse links		Yes			
Sealable when installed		Yes			
Mounting positions		any, but preferably vertical			
Mounting depth	mm	66		70	
Degree of protection acc. to IEC 60529		IP20			
Terminals with touch-protection acc. to BGV A3 at incoming and outgoing feeder		Yes			
Ambient temperature	°C	-5 ... +40, humidity 90 % at +20			
Terminals					
Terminals		anti-slip terminals			
Conductor cross-sections					
• Rigid	mm ²	0.5 ... 10		2.5 ... 10	4 ... 10
• Stranded	mm ²	0.5 ... 10		2.5 ... 25	4 ... 50
• Finely stranded with end sleeve	mm ²	0.5 ... 10		2.5 ... 16	4 ... 35
Conductor cross-sections acc. to UL/CSA AWG (American wire gauge)		8 ... 10 solid		6 ... 10 solid and stranded	
Tightening torque	Nm	1.2		2.0	2.5
Hole pitch	MW	1		1.5	2

Low-Voltage Fuse Systems

Cylindrical Fuse Systems

Bases for cylindrical fuses

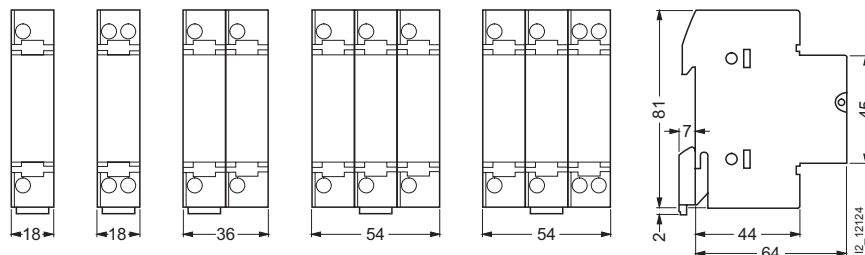
Selection and ordering data

	I_n		For fuse links of size	MW	Order No.	Weight 1 unit approx.	PS* P. unit
	A		mm x mm			kg	Units
Draw-out technology							
without signal detectors							
	1-pole						
		20	8 x 32	1	3NW7 313	0.056	1
		32	10 x 38	1	3NW7 013	0.056	1/12
		50	14 x 51	1.5	3NW7 111	0.095	1
		100	22 x 58	2	3NW7 211	0.145	1
	1-pole + N						
		20	8 x 32	1	3NW7 353	0.069	1
		32	10 x 38	1	3NW7 053	0.069	1
		50	14 x 51	3	3NW7 151	0.215	1
		100	22 x 58	4	3NW7 251	0.330	1
2-pole							
	20	8 x 32	2	3NW7 323	0.118	1	
	32	10 x 38	2	3NW7 023	0.118	1/6	
	50	14 x 51	3	3NW7 121	0.195	1	
	100	22 x 58	4	3NW7 221	0.300	1	
3-pole							
	20	8 x 32	3	3NW7 333	0.172	1	
	32	10 x 38	3	3NW7 033	0.172	1/4	
	50	14 x 51	4.5	3NW7 131	0.295	1	
	100	22 x 58	6	3NW7 231	0.691	1	
3-pole + N							
	20	8 x 32	3	3NW7 363	0.185	1	
	32	10 x 38	3	3NW7 063	0.185	1	
	50	14 x 51	6	3NW7 161	0.315	1	
	100	22 x 58	8	3NW7 261	0.475	1	
with signal detectors							
	1-pole						
		20	8 x 32	1	3NW7 312	0.058	1
		32	10 x 38	1	3NW7 012	0.080	1
		50	14 x 51	1.5	3NW7 112	0.095	1
		100	22 x 58	2	3NW7 212	0.145	1
	1-pole + N						
		20	8 x 32	2	3NW7 352	0.120	1
		32	10 x 38	2	3NW7 052	0.167	1
		50	14 x 51	3	3NW7 152	0.215	1
		100	22 x 58	4	3NW7 252	0.330	1
2-pole							
	20	8 x 32	2	3NW7 322	0.112	1	
	32	10 x 38	2	3NW7 022	0.162	1	
	50	14 x 51	3	3NW7 122	0.195	1	
	100	22 x 58	4	3NW7 222	0.300	1	
3-pole							
	20	8 x 32	3	3NW7 332	0.167	1	
	32	10 x 38	3	3NW7 032	0.243	1	
	50	14 x 51	4.5	3NW7 132	0.295	1	
	100	22 x 58	6	3NW7 232	0.480	1	
3-pole + N							
	20	8 x 32	4	3NW7 362	0.227	1	
	32	10 x 38	4	3NW7 062	0.327	1	
	50	14 x 51	6	3NW7 162	0.315	1	
	100	22 x 58	8	3NW7 262	0.475	1	
Auxiliary switches							
	for indicating disconnection of the fuse link solely for application of Striker fuse links (not currently included in the Siemens product range). For retrofitting using the factory-fitted brackets, 0.5 MW. Contact: 250 V AC, 5 A. Minimum contact load: 12 V, 25 mA						
	for fuse bases		14 x 51	0.5	3NW7 901	0.050	1
	for fuse bases		22 x 58		3NW7 902	0.050	1

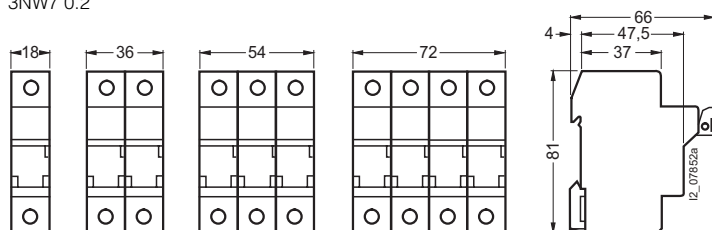
Busbars for bases for cylindrical fuses, see chapter "Busbars for modular installation devices".

Dimensional drawings

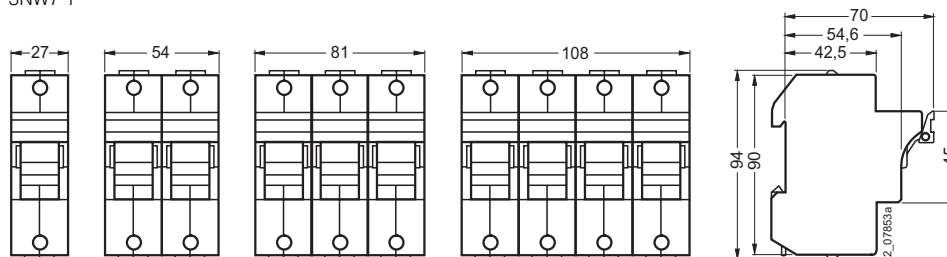
Size 8 mm × 32 mm/without signal detector
 3NW7 3.3
 Size 10 mm × 38 mm/without signal detector
 3NW7 0.3



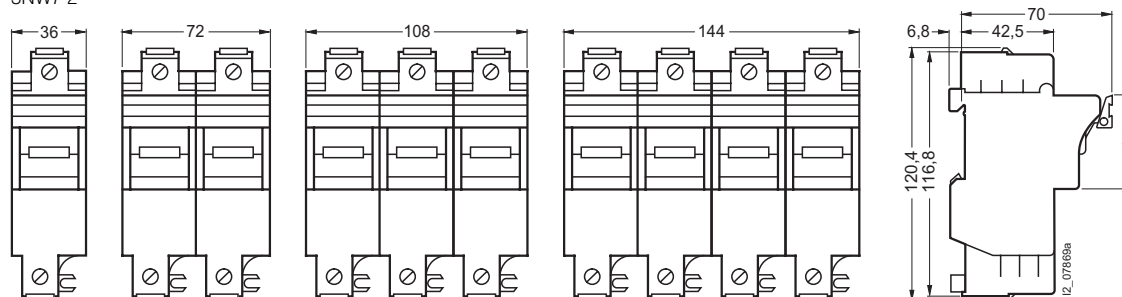
Size 8 mm × 32 mm/with signal detector
 3NW7 3.2
 Size 10 mm × 38 mm/with signal detector
 3NW7 0.2



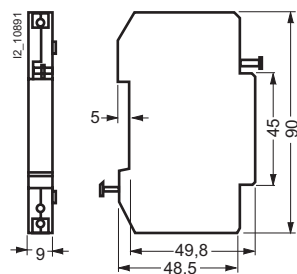
Size 14 mm × 51 mm
 3NW7 1



Size 22 mm × 58 mm
 3NW7 2



Auxiliary switches
 3NW7 901



Auxiliary switches
 3NW7 902

