:: Class certification



ion 1. This sporoval is granted on the basis of the test report no. 990 HZ issued by Korea Electrotechnology Research Institute and MP-AV/000379 & MP-990 H3324 issued by C251. 2. No product ortificate required.

THIS IS TO CERTIFY that the above-metrioned product has been approved in accordance with the relevant requirement of this Society? Rules and/or of the recognized standards as follows and current of the "Lide of Approved Munichteners and Type Approved Equipment."

This Certificate is valid until 7th August, 2010. Issued at Daejeon, Korea on 13th October, 2005



Lloyd's Register

This is I

PLACE OF PRODUCTION

THE

SPECIFIED STANDARD

Rated Fuse Link Current (A) 1, 2, 3, 4, 5, 6, 8, 10, 15, 20, 25, 30, 40, 50 & 60

Issue Date Expiry Date

Lloyd's Regis

Type Approval Certificate Extension

628 Seangchul-Ri, Seanglim-Myun, Gimhae, Kyungsam Korea, Republic of

Non-renewable cartri

JIS C 8332-83: General requireme low-voltage cables

M. Al Rufane M.H.A. Rodein London Plan Approval Land's Register IMEA





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NIPPON KAJI KYOKAI in accordance with the Society's type link requirement electrical equipments and cables. This certificate is valid until the 14th day of November, 2009. Issued at Tokyo on the 15th day of November, 2005.

d to apply to the Society for a









SB CO.,LTD

#703-3 Bugok-ri Jangyu-myun Kimhae-city Kyungnam, Korea Tel. 82-(0)55-338-3113 Fax. 82-(0)55-336-9105 E-mail. sbfuse@sb21c.com www.sb21c.com



Fuse links for Marine & Off-Shore SB-C1 & FH-1550N FH-2075N

⁶⁶ Patient people who tise to the challenge of product innovation with an industrious mindset "

"Patient people who rise to the challenge of product innovation with an industrious mindset"

SB Co., Ltd. was established as Sambu Fuse with the management policy of "Let's be patient people who rise to the challenge of product innovation with an industrious mindset" at Youngdo-gu, Busan City in 1990. The company had endeavored to localize fuse-links for ships and had received type approval for AC 500V 10KA fuse-link from the Korean Register of Shipping (KR) in 1992. The company has continuously endeavored to develop fuses for ships since then. Consequently the company has received type approvals for fuse links of the rated voltage of AC 500V DC 250V and rated ampere from 1A to 60A, breaking current of AC 100KA, DC 50KA from ABS, BV, GL, LR, KR, and NK, which is the first in Korea. The company currently supplies the fuses to almost all ships which are built in Korea and offshore. The company is now meeting the challenge to develop innovative products such as electrical parts for ships for its second take off.

We will do our best to become a comprehensive manufacturer of electrical parts for ships with our continuous R&D efforts and provide our customers with our innovative products.

Please continue to encourage us with your constant guidance and assistance in order for us to be a successful company.

Thank you very much.

Park, woon-han, Representative director of SB Co., Ltd.



Company History

1990. 06	Sambu Fuse was established at Youngdo-gu, Busan City.
1992. 07	Acquired type approval of SC-1 Type Fuse-Links (AC 500V 10KA) from the Korean Register of Shipping (KR).
1997. 05	Korea Electric Power Corporation (KEPCO) approved development test of electric wire fuse.
1997. 07	The company was qualified as a competitive bidder for electric wire fuse by the Korea Electric Power Corporation.
1998. 03	The company started to supply electric wire fuses to the Korea Electric Power Corporation.
1998. 04	The company participated in INNO-BIZ which is managed by the Small and Medium Business Administration (SMBA).
1999. 09	The company was incorporated and its name was changed to SB Fuse Co.,Ltd Its head office and plant moved to Saha-gu, Busan City.
2000. 02	Company research and development certificate. (Sangihyup 20003023)
2000. 03	Participated in INNO-BIZ (SMBA).
2000.05~10	SB-C1 Type Fuse-Links were approved by ABS, BV, GL, LR, KR, and NK.
2000. 06	Registered utility model. (fuse structure)
2000. 10	ISO 9001 certificate.
2001. 08	INNO-BIZ certificate. (SMBA)
2001. 12	Registered utility model. (Tube type holder)
2002. 05	Specialized Components and Materials Enterprise. (the Ministry of Commerce, Industry and Energy)
2002. 06	Chinese office was established in Zhejiang province, China.
2004. 10	The company name was changed to SB Co., Ltd. and its head office and plant were moved to Saengrim-myeon, Gimhae City, Gyeongnam Province.
2008. 03	The company registered utility model (fuse holder).
2008. 04	China plant was established. (Wezhonu SB Electric Co., Ltd.)
2009. 08	The company head office and plant were moved to Jangyu-myeon, Gimhae City, Gyeongnam Province.

C.o.n.t.e.n.t.s

02_	CEO Message
03_	Company History / Contents
04~07_	Fuse-Links
08~11_	Fuse-Holder
12~15_	Fuse-Cover & Puller

Model number SB-C1

(Non-renewable cartridge type current limiting fuse-links)

Service Conditions

SB

- The ambient temperature is within the range of the maximum 45°C and the minimum -25°C. Provided that the average temperature during 24H shall not exceed 35°C.
- · Not affected by shot

Specifications

- Rated voltage AC 500V/DC 250V
- Rated current 1A, 2A, 3A, 4A, 5A, 6A, 8A, 10A, 15A, 20A, 25A, 30A, 40A, 50A, 60A
- Rated frequency 50Hz 60Hz
- · Rated breaking capacity (Interrupting capacity). AC 100,000A/DC 500,000A.
- · Classification class "A" (Fusing factor 1.35In)

Marine/Off-Shore Type Approvals for SB-C1 Fuse Links

- · American Bureau of Shipping(ABS)
- · Bureau Veritas(BV)
- · Germanischer Lloyd(GL)
- · Lloyd Register of shipping(LR)
- · Korea Register of shipping(KR)
- · Nippon Kaiji Kyokai(NK)
- · KS A 9001/ISO 9001

Table Standard Ratings



Model Number	Rated voltage(V)	Rated current(A)	Rated frequency(Hz)	Rated breaking capacity(KA)	Fusing factor	Approved number
SB-C1	AC 500 DC 250	1A, 2A, 3A, 4A, 5A, 6A, 8A, 10A, 15A, 20A, 25A, 30A, 40A, 50A, 60A	50~60	AC 100 (ACL 100) DC 50 (DCL 50)	1.35In	ABS 05-BK130633-PDA BV 08716/C0 BV GL 13784-99HH LR 00/00102(E1) KR GCH04247-EL002 NK 00T101 ISO K01-1321

Construction and Dimensions

- · The fuse element is made of silver alloy with special treatment applied.
- The insulating tube is made of special ceramics having higt heat-resistance an sand is use as arc-extinguishing filler.
- · The materials for current carrying metal fitting is of copper alloy.



Table Dimension

-	Model		Dimension(mm)			Weight
	Number	Rated current(A)	А	В	с	(g/pc's)
	SB-C1	1A, 2A, 3A, 4A, 5A, 6A, 8A, 10A, 15A, 20A, 25A, 30A	50	13	15	22
	3 6 -C1	40A, 50A, 60A	75	16	20	56
		1.00 4 VIV. 250 , 10	CRLAY.			

:: PERFOMANCE

Pre-arcing time/current characteristic 1-60Amperes, 500VAC(Fusing Factor-1.35In)



Cut-off characteristics



:: Verification of breaking performanceI, at DC

• Applied voltage DC 254V

Steady-state current 51,980A

- Peak current 52,410A
- Time constant 15.1 ms

Table

Тире	Rated	Cut-off	Time(ms)		I²t(KA²S)		Switching	Insulation resistance
Туре	current(A)	current(A)	pre-arcing	arcing	melting	arcing	voltage(KV)	after operation (MQ)
	1	142	0.10	0.086	0.00130	0.00080	1.267	>500
	1	144	0.10	0.086	0.00132	0.00028	0.269	>500
	1	144	0.09	0.088	0.00129	0.00032	0.270	>500
	30	2170	1.00	2.690	1.26	1.66	0.515	>500
	30	2180	1.01	2.880	1.32	1.56	0.565	>500
SB-C1	30	2170	1.01	2.720	1.27	1.60	0.558	>500
50-01	40	2610	1.17	2.430	2,18	2.53	0.571	>500
	40	2530	1.14	2.680	2.08	2.49	0.583	>500
	40	2580	1.16	2.520	2.17	2.64	0.573	>500
	60	4320	1.83	3.280	10.40	10.85	0.646	>500
	60	4350	1.84	3.270	10.72	11.35	0.656	>500
	60	4370	1.89	2.850	10.88	9.73	0.653	>500



Interrupting(I,)oscillogram of type SB-C1 30A at DC 250V



Interrupting(I,)oscillogram of type SB-C1 60A at DC 250V

SB

(05)

:: Verification of breaking performance I_1 at AC

- Applied voltageAC 525V
- Steady-state current 100,400A
 Peak current 232,170A

• Power factor 0.15

Table

	Dated	Cut-off	Time(ms)		I²t(KA²S)		0.107	Ingulation resistance
Туре	Rated current(A)	current(A)	pre-arcing	arcing	melting	arcing	over voltage(KV)	Insulation resistance after operation (M Ω)
	30	6420	0.15	4.50	1.15	7.35	1170	>500
	30	6720	0.12	3.58	1.30	7.93	1180	>500
SB-C1	30	6540	0.13	4.38	1.25	7.95	1160	>500
30-C	60	8640	0.3	1.1	6.97	24.66	891	>500
	60	9010	0.3	1.1	7.46	23.98	892	>500
	60	9280	0.31	0.74	7.87	22.33	932	>500



Interrupting(I₁)oscillogram of type SB-C1 30A at AC 500V



Interrupting(I,)oscillogram of type SB-C1 60A at AC 500V

• Applied voltage DC 255V

■ Table

• Steady-state current 2,000A

• Peak current 2,010A

• Time constant 18.9ms

Tupo	Rated current(A)	Cut-off	Cut-off Time(ms)		I²t(KA²S)		Switching	Insulation resistance
Туре		(A) current(A)	pre-arcing	arcing	melting	arcing	voltage(KV)	after operation (MQ)
	30	601	16.47	8.04	2.46	0.98	0.637	>500
	30	598	16.70	8.09	2.49	1.02	0.630	>500
SB-C1	30	595	16.30	8.30	2.43	1.03	0.637	>500
30-C	60	1410	23.70	10.1	20.90	5.84	0.868	>500
	60	1400	23.30	9.3	20.16	5.63	0.870	>500
	60	1410	23.70	9.4	20.70	5.92	0.865	>500



Interrupting(I₂)oscillogram of type SB-C1 30A at DC 250V



Interrupting(I2)oscillogram of type SB-C1 60A at DC 250V

06

:: Ordering Information



STA

07

SB

Table

Model Number	Rated current(A)	Order Number	Weight(g/pcs)	QT' Y/box(pcs)	Apporoved	
	1A	1-SB-01			ABS	
	2A	1–SB–02			ADS	
	ЗA	1–SB–03				
	4A	1–SB–04				
	5A	1-SB-05			Llovds	
	6A	1–SB–06	24	20	Lloyd's Register	
	8A	1–SB–08	24	20		
SB-C1	10A	1-SB-10				KR
	15A	1-SB-15			(Santa)	
	20A	1–SB–20			(INK)	
	25A	1–SB–25			Classith	
	30A	1–SB–30			GL.	
	40A	1–SB–40				
	50A	1–SB–50	56	5	Robiered Bo Sosti Soci	
	60A	1–SB–60			ISO 9001:2000	

SB

➔ Fuse-Holder For Cartridge Type Fuse-Links

FH-30C



Specifications

Fixing Method	Bottom Mounting
Application Fuse-Lir	SB-C1(15 \emptyset × 50L)
Rated Voltage	AC 600V/DC 300V
Rated Current	30A Maximum
Clip	Copper with Sn coated
Base	Poly Carbonate JL94 V0 Flammability Rating
Screws	Steel with Zn coated
Name plate of	ABS
Circuit number	

Ordering Information

Order number	Name	Weight(g)	QT'Y(box)
1-FH-30C	Fuse-holder	50	30 pcs
1-CN-30	Name Plate of circuit number	0.3	100 pcs

Drawing



FH-30D



Specifications

Fixing Method	Rail Mounting
Application Fuse-	Links SB-C1(15Ø×50L
Rated Voltage	AC 600V/DC 300V
Rated Current	30A Maximum
Clip	Copper with Sn coated
Base	Poly Carbonate UL94 V0 Flammability Rating
Screws	Steel with Zn coated
Name plate of	ABS
Circuit number	

Ordering Information

Order number	Name	Weight(g)	QT'Y(box)
1-FH-30D	Fuse-holder	62	-
1-CN-30	Name Plate of circuit number	0.3	100 pcs

Drawing





(08)





Specifications

Fixing Method	Bottom & Rail Mounting
Application Fuse-L	Links Size 20Ø×58L
Rated Voltage	AC 600V/DC 300V
Rated Current	60A Maximum
Clip	Copper with Sn coated
Terminal	Copper alloy with Sn coated
Base	Poly Carbonate UL94 V0 Flammability Rating
Screws	Steel with Zn coated

Ordering Information

Order number	Name	Weight(g)	QTY(box)
1-FH-2060	Fuse-holder	106	-

Drawing









Specifications

Fixing Method	Bottom & Rail Mounting
Application Fuse-L	Links Size 20Ø×75L
Rated Voltage	AC 600V / DC 300V
Rated Current	60A Maximum
Clip	Copper with Sn coated
Terminal	Copper alloy with Sn coated
Base	Poly Carbonate UL94 V0 Flammability Rating
Screws	Steel with Zn coated

Ordering Information

Order number	Name	Weight(g)	QTY(box)
1-FH-2075	Fuse-holder	112	10 pcs

Drawing





SB



(09)

➔ Fuse-Holder For Cartridge Type Fuse-Links



SB





Specifications

Fixing Method	Rail & Botton Mounting
Application Fuse-Lin	ks $SB-C1(15\emptyset \times 50L)$
Rated Voltage	AC & DC 690V
Rated Current	30A Maximum
Clip	Copper with Sn coated
Base U	Poly Carbonate L94 V0 Flammability Rating
Screws	Steel with Zn coated
Name plate of	ABS
Circuit number	



Ordering Information

Order number	Name	Weight(g)	QTY(box)
1-FH-1550N	Fuse-holder	51g	30 pcs
1-CN-30-1P	Name Plate-30-1P		100 pcs
1-CN-30-2P	Name Plate-30-2P		100 pcs
1-CN-30-3P	Name Plate-30-3P		100 pcs

Drawing





Pole	1P	2P	зP
l	24.0	49.0	74.0

Name Plate of Circuit Number



10





Specifications

Fixing Method	Rail & Botton Mounting
Application Fuse-I	$_$ SB-C1(20Ø×75L)
Rated Voltage	AC 690V/DC 300V
Rated Current	60A Maximum
Clip	Copper with Sn coated
Terminal	Copper alloy with Sn coated
Deee	Poly Carbonate
Base	UL94 V0 Flammability Rating
Screws	Steel with Zn coated
Name plate of	ABS
Circuit number	





Ordering Information

Order number	Name	Weight(g)	QT'Y(box)
1-FH-2075N	Fuse-holder	126g	10 pcs
1-CN-60-1P	Name Plate-60-1P		100 pcs
1-CN-60-2P	Name Plate-60-2P		100 pcs
1-CN-60-3P	Name Plate-60-3P		100 pcs

Drawing







Name Plate of Circuit Number









SB

(Non Indicating type Fuse-Cover)







FH-30D + FC30





Specifications

ApplicationFuse-Links SB-C1(15Ø×50L)ApplicationFuse HolderBasePoly Carbonate
UL94 V0 Flammability Rating

68.5



FH-30C + FC30

(Indicating type Fuse-Cover)





Specifications

Application	n Fuse-LinksS	$B-C1(150\times50L)$
Application	Fuse Holder	FH30C & 30D
Base		Poly Carbonate mability Rating
Indicator		LED Lamp

Ordering Information

FH-30C + FC30i

Order number	Name	Weight(g/pc' s)	QT'Y(box)
1-FC-30	Fuse-cover(Non indicator)	10	30 pcs
1-FC-30i	Fuse-cover(With indicator)	11	30 pcs

FH-30D + FC30i

(12









Specifications

Application Fuse-LinksSB-C1(15Ø×50L) Application Fuse Holder FH1550N Poly Carbonate Base UL94 V0 Flammability Rating

20

(13)









Q 9.6 LED Lamp 25 20

Specifications

Applicat ior	n <mark>Fuse-Links</mark> SB-	$-C1(150 \times 50L)$
Application	n Fuse Holder	FH1550N
Base	Pc UL94 V0 Flamm	ly Carbonate ability Rating
Indicator		LED Lamp

Ordering Information

•			
Order number	Name	Weight(g/pc' s)	QTY(box)
1-FC-1550N	Fuse-cover(Non indicator)	13	30 pcs
1-FC-1550N i	Fuse-cover(With indicator)	20	30 pcs

SB











Specifications

Application	<mark>Fuse-Links</mark> SB-	$C1(20\emptyset \times 35L)$
Application	Fuse Holder	FH2075N
Base	Po UL94 V0 Flamma	ly Carbonate ability Rating







Specifications

Application	<mark>n Fuse-Links</mark> SB [.]	$-C1(200 \times 35L)$
Application	n Fuse Holder	FH2075N
Base	Po UL94 V0 Flamm	oly Carbonate nability Rating
Indicator		LED Lamp



FH-2075N + FC2075Ni

Ordering Information

Order number	Name	Weight(g/pc' s)	QT'Y(box)
1-FC-2075N	Fuse-cover(Non indicator)	38	10 pcs
1-FC-2075N i	Fuse-cover(With indicator)	42	10 pcs



(Fuse-Puller)



Specifications

Application Fuse-Lin	ks SB-C1($150 \times 50L$, $200 \times 75L$)
Base	ABS UL 94 V0 Flammability Rating
Clip & Screw	Steel with Zn Coated
Spring	Stainless Sreel

► Fuse-puller(FP-36)







SB

Ordering Information

Order number	Name	Weight(g/pc' s)	QTY(box)
1-FP-36	Fuse-puller	72	10 pc's
1-P-30	Clip	59	-



(15)