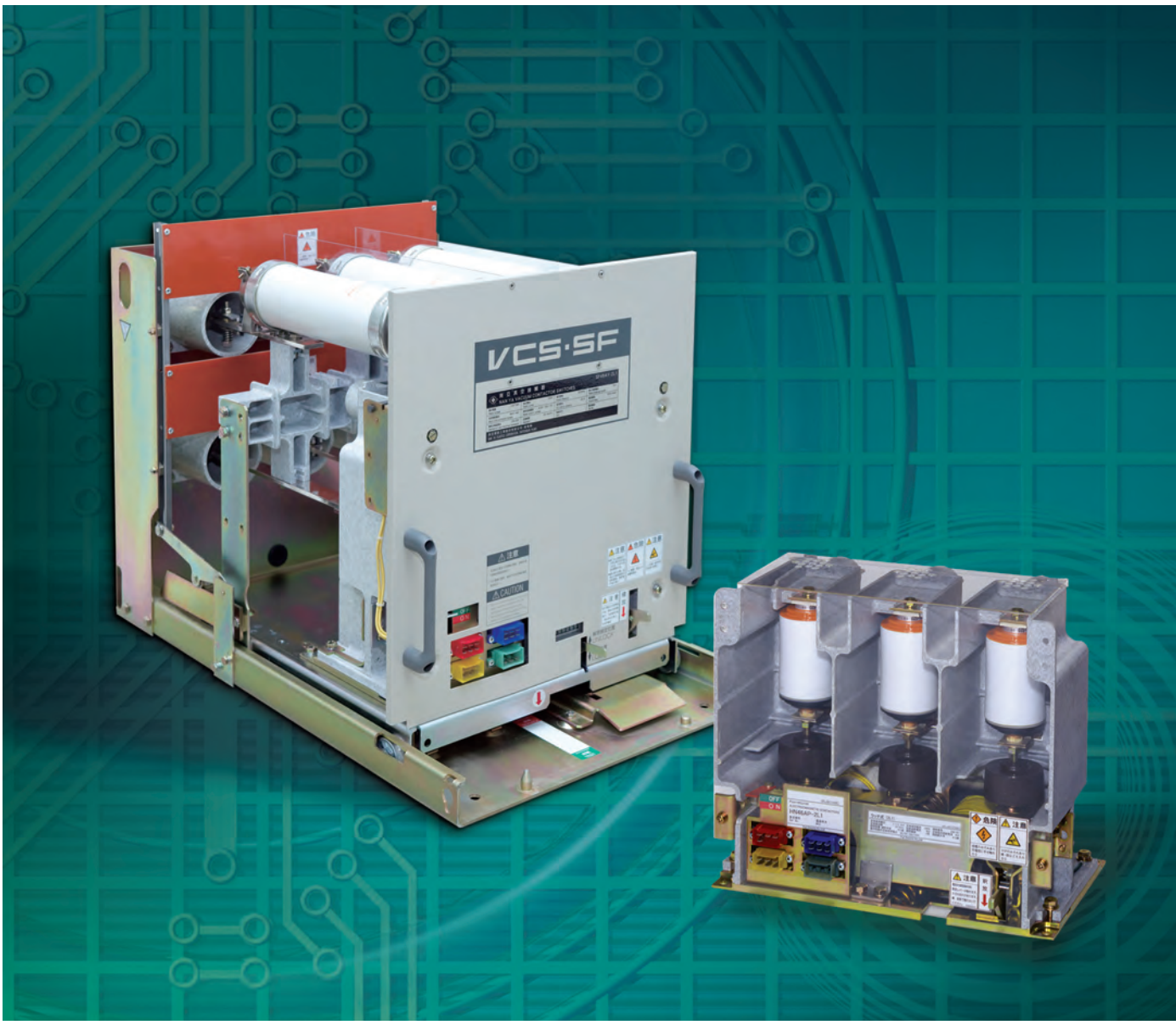
榮獲經濟部標準檢驗局ISO 9001、ISO 14001及OHSAS 18000認證之配電盤廠
The switchgear plant with ISO 9001、ISO 14001 & OHSAS 18000 certified by
Bureau of Standards, Metrology & Inspection (BSMI) Ministry of Economic Affairs, Taiwan

真空電磁接觸器
Vacuum Contactor Switches

與日本富士電機技術合作
Licensed by Fuji Electric, Japan



南亞塑膠工業股份有限公司
NAN YA PLASTICS CORPORATION
工務部・配電盤組
Switchgear Unit, Engineering Div.

目　錄 · CONTENTS

珍愛大地 ‧ 環境優先
Cherish the earth ▪ Environment takes Priority

公司簡介

南亞塑膠工業股份有限公司工務部配電盤組於1981年成立；主要生產中壓瓦斯絕緣開關箱、中壓開關箱、低壓開關箱、智慧型低壓馬達控制中心、真空接觸器 及模鑄式變壓器等產品，為全台最大之配電盤生產廠。

真空接觸器為2011年與日本富士公司(FUJI)技術合作，並於2012年經日本富士公司品質認證後投產；2013年完成IEC及中國GB型式試驗。

本公司設有訓練中心提供客戶全方位訓練、建立材料供應鏈及施工標準化以確保產品品質，並有定期保修及緊急搶修之良好售後服務之機制。本公司除了積極改善製程節能減碳符合環保、持續開發新產品及新技術提升產品競爭力外，更期許能為客戶提供更可靠、高品質、價格合理電力產品。

台塑大樓
The headquarters of Formosa Plastics Group

Company Profile

The Switchgear Plant of Engineering Division, Nan Ya Plastics Corporation was established in 1981; as the largest switchgear manufacturer in Taiwan, our main products include Medium voltage gas insulation switchgears, Medium voltage switchgears, Low voltage switchgears, Smart low voltage motor control centers, Vacuum contactor switches and Cast resin transformers.

The production technology of Vacuum Contactor Switches was licensed by FUJI ELECTRICS FA COMPONENTS & SYSTEMS CO., LTD. Japan in 2011. As the quality passed the inspection and certified by FUJI in 2012, we began to produce the product, type tests complied with IEC and GB of China were completed in 2013.

We set up a training center which provides our customers with comprehensive training, establish supply chain of materials, guarantee product quality through operation standardization, and offer a complete after-sale service system including regular maintenance and emergency repair of equipment. In addition to achieving energy-resource-saving and carbon reduction through active improvement of environmental-friendly manufacturing processes and elevating our competitive ability through the continuous development of new products and technologies, we promise to offer our clients more reliable electrical products with better quality and reasonable price.

新港廠
Shin Kang switchgear plant

■ 品質認證Quality Certifications

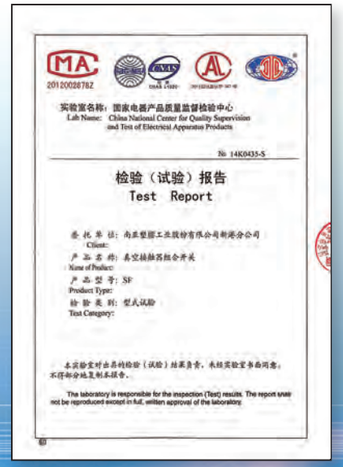
ISO9001品質管理系統
ISO9001 Quality management system

ISO14001環境管理系統
ISO14001 Environmental management system

OHSAS18001職業安全衛生管理系統
OHSAS18001 Occupational Safety and Health Management System

TAF實驗室認證
TAF Labs certification

ILAC認可實驗室之型式試驗報告
Type test reports issued by ILAC accredited Laboratory



ILAC認可實驗室之型式試驗報告
Type test reports issued by ILAC accredited Laboratory

■ 特 點

- 操作電壓是AC、DC可供選用。
- 透過採用電子控制來提升信賴性。
- 大幅減低消耗電力。
- 高效能遮斷器，可有效減低突波。
- 3.6／7.2kV共用。
- 小型、輕量，可做到配電盤的小型化。
- 對應IEC、JEM規格標準。

■ Features

- Both AC and DC power supply operation possible.
- Incorporate a SUPER MAGNET and built-in IC to upgrade reliability.
- The IC minimizes the power consumption used in the closing circuit.
- A high performance interrupter minimize surges.
- A common insulating frame for units with a rated voltage of 3.6kV and 7.2kV.
- Small in size and light in weight, simplifies switchgear design.
- Fully in standards of IEC and JEM.

■ 額定規格 Rated specification

● 本 體 Body

型式 Type			SF46A□-2 (註1)	SF46A□-4 (註1)
額定 Rated	電壓 Voltage		3.6/7.2 kV	
	頻率 Frequency		50/60 Hz	
	電流 (註3) Current (Note 3)		200 A	400 A
	遮斷電流 Interrupting current		4 kA	
	短時間耐電流 Short-time current		6 kA (1秒), 峰值 15 kA　6 kA (1 sec), 15 kA (peak)	
絕緣等級 Insulation level	商頻耐壓 Dielectric strength/1 min		20 kV (16 kV 極間) 20 kV (16 kV between poles)	
	衝擊波 Inpulse 1.2X50 μs		60 kV (45 kV 極間) 60 kV (45 kV between poles)	
閉路、遮斷容量 Closed circuit and interrupting capacities			AC4	
開閉頻率 Intermittent			600次/1小時　600 times /1h	
電氣壽命 Electrical life			25萬次　250,000 times	
機械壽命 Mechanical life		電磁保持型 Normal energized type	250萬次　2,500,000 times	
		機械保持型 Mechanically latched type	25萬次　250,000 times	
動作時間 Mean Time between Operations	投入時間 Closing time		140 ms	
	開啟時間 Opening time	電磁保持型 Normal energized type	100 ms	
		機械保持型 Mechanically latched type	20 ms	
輔助接點 Auxiliary contact			3a+3b (3NO+3NC)	
最大負載容量 (註2) Maximum applicable load capacity (Note 2)	三相感應馬達 Three-phase induction motor	3.3 kV	750 kW	1500 kW
		6.6 kV	1500 kW	3000 kW
	三相變壓器 Three-phase transformer	3.3 kV	1000 kVA	2000 kVA
		6.6 kV	2000 kVA	4000 kVA
	電容器 Capacitor	3.3 kV	1000 kVar	1000 kVar
		6.6 kV	2000 kVar	2000 kVar
依據規範 Standard			IEC 60470, JEM 1167 (1990)	

(註1) □為組裝方式
　　P：固定型
　　X：抽出型(CW)
　　Y：抽出型(MW・PW, 附套管、附shutter)
(註2) 表示本體適用，附保險絲時的適用內容請參照第5頁。
(註3) VCS本體的數值，附保險絲時，根據所搭載之保險絲則流通電流會有不同。

(Note 1)□refers to installation type
　　P: Fixed type
　　X: draw-out type (CW)
　　Y: draw-out type (MW・PW, attached with bushing and shutter)
(Note 2) refers to body's serviceability. See also page 5 for body's serviceability while attached with fuses.
(Note 3) refers to VCS body's value. Circulating current may various based on carried fuses while attached with fuses.

真空電磁接觸器 Vacuum Contactor Switches

● 控制回路 Control circuit

操 作 方 式 Operation mechanism	電磁保持型 Normal energized type			
型式 Type	—□S1		—□S2	
操作電壓 Operating voltage	AC 100/110V	DC 100/110V	AC 200/220V	DC 200/220V
投入電流 Closing current	3A (at 100V)	3A (at 100V)	1.5A (at 200V)	1.5 (at 200V)
保持電流 Holding current	0.05A	0.05A	0.03A	0.03A

操 作 方 式 Operation mechanism	機械保持型 Mechanically latched type			
型式 Type	—□L1		—□L2	
操作電壓 Operating voltage	AC 100/110V	DC 100/110V	AC 200/220V	DC 200/220V
投入電流 Closing current	3 A (at 100V)	3 A (at 100V)	1.5 A (at 200V)	1.5 A (at 200V)
跳脫電流 Tripping current	3.5 A (at 100V)	3 A (at 100V)	2.2 A (at 200V)	2 A (at 200V)

● 適用開關設備 Application of switching devices

相關規格 Relevant specification ＼ 組裝方式 Installation type		固定型 Fixed type	抽出型 Draw-out type	
		P	X	Y
金屬閉鎖型開關設備及控制開關 Metal closed switchgear and control switch JEM 1425 (1995) CNS 3990　C4130	MW・PW型 MW・PW Type	—	—	●
	CX型 CX Type	●	—	—
	CW型 CW Type	—	●	—

記號說明：● 可適用，　— 不適用
[規格記號說明]
MW・PW型：金屬閉鎖型開關設備+抽出型接觸器
CX型：配電盤型開關設備+固定型接觸器
CW型：配電盤型開關設備+抽出型接觸器

Mark explains: ● applicable, — NA
[Explain for specification marks]
MW・PW Type: Metal coated switchgear + draw-out contactor
CX Type: switchgear + fixed contactor
CW Type: switchesgear + draw-out contactor

抽出型 (Y型)
draw-out type (Y type)

固定型 (P型)
Fixed type (P type)

■ 選用型式 Selection of types

SF46A □ – □ □ □ □ □ ／ □

基本型式 Basic types
額定遮斷電流：4kA
Rated interrupting current：4kA
額定使用電壓：3.3/6.6kV
Rated operational voltage：3.3/6.6kV

組裝方式 Installation type

記號 Mark	說明 Description
P	固定型 Fixed type
X	抽出型 Draw-out type (CW)
Y	抽出型(MW・PW, 附套管、活動遮板) Drawl-out type (MW・PW, with bushing and shutter)

額定使用電流 Rated operational current

記號 Mark	說明 Description
2	200A
4	400A

操作方式 Operation mechanism

記號 Mark	說明 Description
S	電磁保持型 Normal energized type
L	機械保持型 Mechanically latched type

額定控制電壓 Rated control supply voltage

記號 Mark	說明 Description
1	AC100/110V, DC100/110 (閉路、開路共同) AC100/110V, DC100/110 (for both open and close circuit)
2	AC200/220V, DC200/220 (閉路、開路共同) AC200/220V, DC200/220 (for both open and close circuit)

開關位置 Position indication switch

記號 Mark	說明 Description
S2	操作位置、試驗位置各附2c接點 With two contacts for the service position and test position respective
無記號 No mark	無位置開關 Without position indicating switch

保險絲座的種類 Type of fuse holder

記號 Mark	說明 Description
C	JB-3/50~200、JB-6/20~50用座 Holder for JB-3/50~200 , JB-6/20~50
D	JB-6/100~200用座 Holder for JB-6/100~200
E	JB-3/150~200雙排用座 Parallel holder for JB-3/150~200
G	JB-6/150~200雙排用座 Parallel holder for JB-6/150~200
T	無保險絲座 (抽出型、附短路銅排) Without fuse holder (draw-out type, with short-circuit bar)
無記號 No mark	無保險絲座 (僅限於固定型P) Without fuse holder (for fixed type P only)

■ 附屬品組合一覽表 Accessories combination table

組裝方式 Installation type		P	X	Y
附屬品 Accessories	機械式計數器 Mechanical counter＊1	◎	◎	◎
	位置開關 Position indicating switch＊1	–	○＊2	○＊2
	保險絲熔斷顯示接點 Fuse blown indicating contact＊1	◎＊3	◎＊3	◎＊3
	抽出連鎖接點 Draw-out interlocking contact＊1	–	◎	◎
	附外部導線連接器 Connector with external lead wire	◎	◎	◎
	測試跨接線 Test lead	●	●	●
	輔助迴路端子台 Auxiliary circuit terminal block＊1	○＊4	–	–
	延長滑軌 Extension rail	–	●	●
	盤外防止脫落配件 Stopper	–	◎	◎
	台車 Lifter	–	●	●
	絕緣管 Insulation pipe	●＊4	–	–
	輔助迴路連鎖 Auxiliary circuit plug interlock＊1	–	○	○
	電容器跳脫電源裝置 Capacitor tripping device	●	●	●

◎：標準附屬品　◎: Standard accessory
○：指定附屬品　○: Customer-specified accessory
●：選配附屬品　●: Accessory sold separately
－：不適用　－: NA

＊1：出貨時組裝　＊1: Attached during factory
＊2：可之後組裝　＊2: Attachable subsequently
＊3：僅適用附保險絲　＊3: Attachable for fuse types
＊4：僅適用無保險絲　＊4: Available for non-fuse types

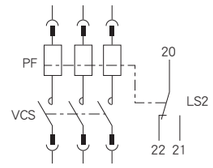
■ 標準附屬品 Standard accessories

- 抽出連鎖接點(抽出型)　•Draw-out interlocking contact (draw-out type)
- 盤側導線(2m)　•Connector with external lead wire (2m)
- 計數器(機械式6位數)　•Counter (Mechanical 6 digits)
  請在維修、檢查時使用。　Please use it while maintenance and check
- 輔助接點　•Auxiliary contact

接點構成 Contact arrangement		3a3b
開閉容量 Make or break	AC220V	L6A
R：電阻負載 Resistance load	AC110V	L6A
L：電感負載 Induction load	DC220V	R1, L0.45A
	DC110V	R2.5, L1.3A

接點構成 Contact arrangement		1C
開閉容量 Make or break	AC250V	R16, L10A
R：電阻負載 Resistance load	DC250V	R0.3, L0.06A
L：電感負載 Induction load	DC125V	R0.6, L0.3A

- 保險絲顯示接點
  在有保險絲時組裝，當保險絲熔斷時進行動作的接點。
- Blowout display contact (attached with fuse)
  Assemble when equipped with fuse, and when the fuse is burnt down can take the connection operation.



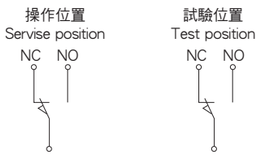
■ 指定附屬品（工廠出貨時組裝）Specified accessories (ship assembling)

● 位置開關 Position indication contact

顯示試驗位置及操作位置的開關。
會組裝1c或2c。
Position switches at test and servise positions.
Assemble 1c or 2c.

指定記號 Specified mark	接點構成 Contact arrangement		開閉容量（R：電阻負載，L：電感負載）Make or break (R: Resistance load, L: Induction load)	
	操作位置 Servise position	試驗位置 Test position	AC/DC250V	AC/DC125V
S2	2c	2c	R3A LNC2A, NO1.5A	R10A LNC7.5A, NO6A

接線圖
Circuit diagram



VCS在操作位置時，會變成NO接點閉合。
In operation position, VCS will change into the NO contact switch.

VCS在試驗位置時，會變成NO接點閉合。
In test position, VCS will change into the NO contact switch.

● 抽出裝置 Draw-out devices

X (CW型)
X (CW Type)

抽出型（MW・PW, 附套管、活動遮板）
Draw-out type (MW・PW, attached with bushing and shutter)

■ 選配之附屬品及其規格 Optional accessories and specifications

● 電力保險絲 Power fuse

系統電壓 System voltage〔kV〕	保險絲型式 Fuse type	商品編號 Product ID	重量 Weight〔kg〕	額定規格 Rated specification						
				額定電壓 Rated voltage〔kV〕	〔kA〕	〔A〕	電流 Current〔A〕 G	T	M	(註)(Note) C
3.3	JB-3/50	HF1B-050	1.0	3.6	40 (250MVA)	350	—	50	50	—
	JB-3/100	HF1B-100				700	—	100	100	—
	JB-3/150	HF1B-150	2.0			1050	—	150	150	—
	JB-3/200	HF1B-200				1400	—	200	200	—
6.6	JB-6/20	HF2B-020	2.0	7.2	40 (500MVA)	140	—	20	20	16
	JB-6/50	HF2B-050				350	—	50	50	50
	JB-6/100	HF2B-100	3.0			700	—	100	100	75
	JB-6/150	HF2B-150				1050	—	150	150	125
	JB-6/200	HF2B-200				1400	—	200	200	150

(註) JIS、JE規格的G(一般用)、T(變壓器用)、M(馬達用)、C(電容器用)之額定。
(Note) JIS、JE specified G (for general use)、T (for transformer use)、M(for motor use)、C(for capacitor use) rated.

● 適用保險絲座一覽表 List of available fuse socket

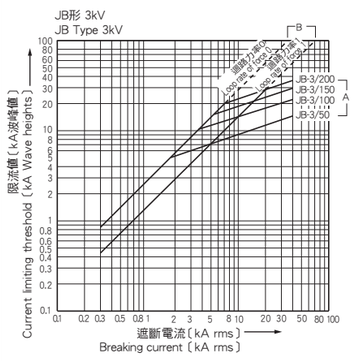
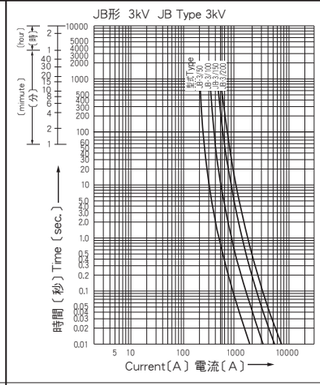
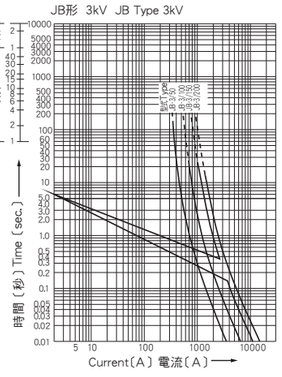
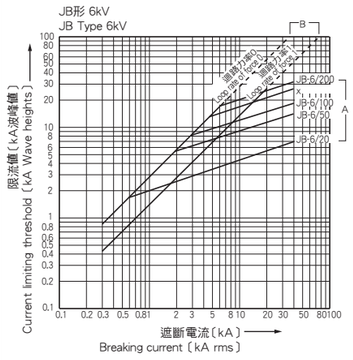
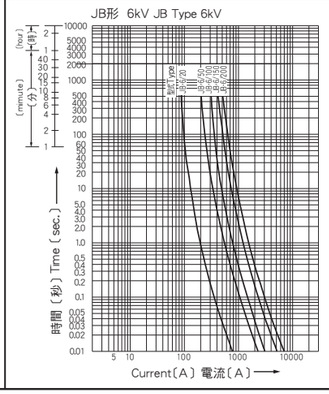
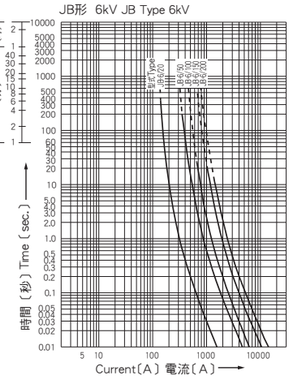
保險絲座記號 Fuse holder mark	組裝方式 Installation type		
	固定型 Fixed Type	抽出型 Draw-out Type	
	P	X	Y
C	○ ＊1	○	○
D	○ ＊1	○	○
E	○ ＊1	○	○
G	○ ＊1	○	○
T	—	○	○
無記號 No mark	○	—	—

○：可製作 —：不可製作
○：makable —：not makable

＊1：為附車輪固定型。
保險絲座記號的意思請參照第3頁。

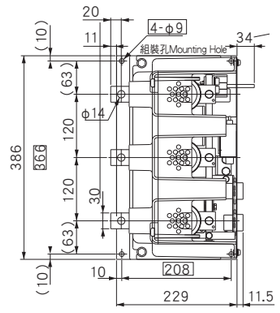
＊1: Implemented fixed type with wheels
Explains for fuse holder marks, please refer to page 3.

■ 電力保險絲特性 Characteristics of the power fuse

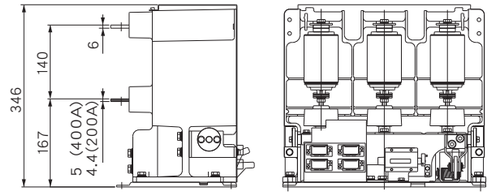
系列 Series ＼ 特性 Characteristic	限流特性 Current limiting characteristics	容許時間電流特性 Allowable time current characteristics	動作時間電流特性 Actuation time current characteristics
JB(3.6kV)			
JB(7.2kV)			

■ 外觀尺寸圖 [mm] Appearance and dimension figures [mm]

固定型（P形） Fixed Type（P Form）

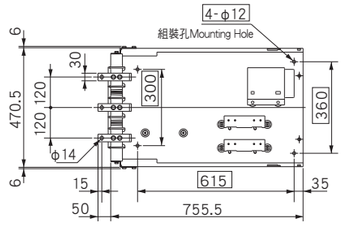


	重量 Weight
電磁保持型 Normal energized type	19 kg
機械保持型 Mechanically latched type	20 kg



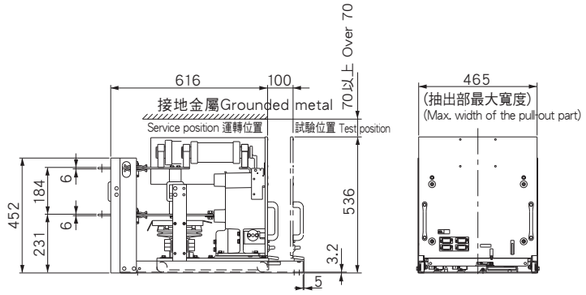
抽出型（X形） Draw-out Type（X Form）

抽出座平面圖 Draw-out type dimension



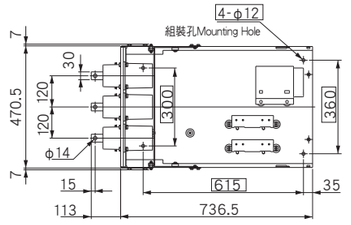
	重量 (註) Weight (Note) 本體 Body	抽出座 Bracket
電磁保持型 Normal energized type	34 kg	17 kg
機械保持型 Mechanically latched type	35 kg	

(註)表示代表性重量 (不含保險絲)
(Note) It refers to representative weight. (Without fuse weights)



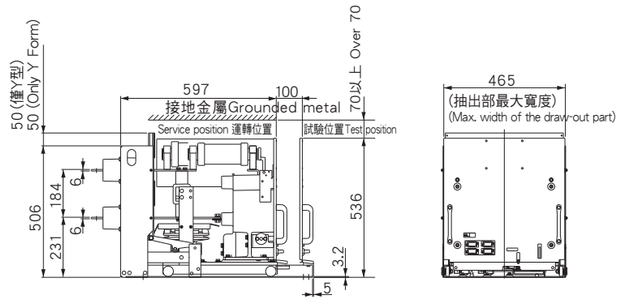
抽出型（Y形）

抽出座平面圖 Draw-out type dimension



	重量 (註) Weight (Note) 本體 Body	抽出座 Bracket
電磁保持型 Normal energized type	35 kg	28 kg
機械保持型 Mechanically latched type	36 kg	

(註)表示代表性重量 (不含保險絲)
(Note) It refers to representative weight. (Without fuse weights)

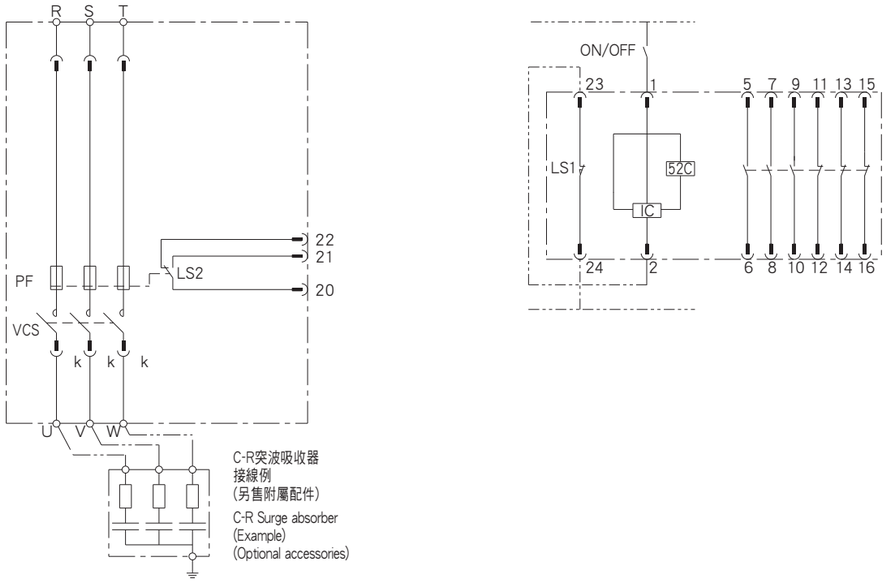


■ 接線圖 Circuit diagrams

電磁保持型 Normal energized type

—— 線表示產品內部的接線。 —— Refers to the continuity in product's internal organization
- - - - 線表示指定附屬零件的接線。 - - - - Refers to the continuity of specified accessories
-·-·- 線表示外部接線的範例。 -·-·- Refers to the continuity of external organization

抽出型接線圖 Circuit diagrams of draw-out type



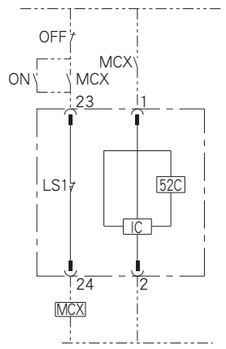
輔助回路連接器端子號碼
Auxiliary circuit contactor terminal number

固定型(無保險絲) Fixed type (without fuse)	抽出型(附保險絲) Draw-out type (with fuse)
1 2 紅R 11 12 13 藍B 14 15 16	1 2 紅R 11 12 13 藍B 23 24 14 15 16
5 6 7 黃Y 線G 8 9 10	5 6 7 黃Y 20 21 22 線G 8 9 10

VCS：電磁接觸器本體
52：輔助接點
52C：投入線圈
IC：IC控制裝置
LS1：連動接點(僅抽出型有附)
LS2：PF熔斷顯示接點
MCX：投入用輔助繼電器(非提供品)
PF：保險絲(另售附屬配件)
ON：投入用開關(非提供品)
OFF：跳脫用開關(非提供品)

VCS: Vacuum Contactor Switches
52: Auxiliary contact for vacuum contactor
52C: Closing coil
IC: IC-control device
LS1: Limit switch for interlock (only for the draw-out type)
LS2: PF blowout display junction
MCX: Auxiliary relay for closing (excluding in supply)
PF: Power fuses (Optional accessories)
ON: Closing switch (Not supplied)
OFF: Tripping switch (Not supplied)

(外部繼電器回路範例)
Wiring diagram for external relay circuit (Example)

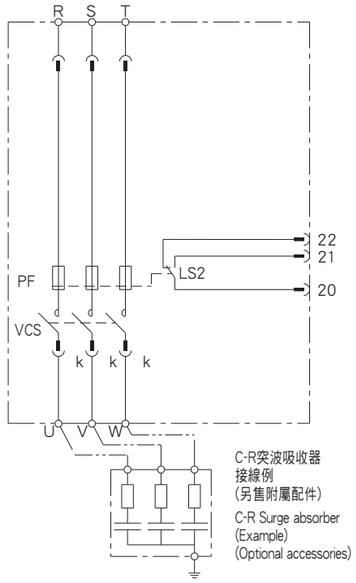


■ 接線圖 Circuit diagrams

機械保持型 Machanically latched type

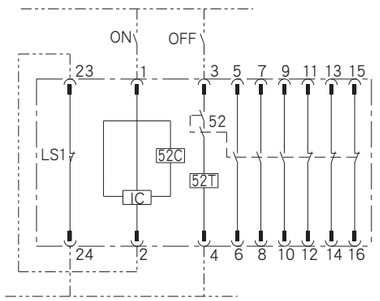
—— 線表示產品內部的接線。 —— Refers to the continuity in product's internal organization
- - - - 線表示指定附屬零件的接線。 - - - - Refers to the continuity of specified accessories
-·-·- 線表示外部接線的範例。 -·-·- Refers to the continuity of external organization

抽出型接線圖 Circuit diagrams of draw-out type



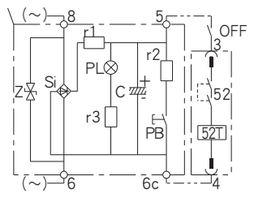
(註1) 投入訊號必須超過0.2秒以上。
(註2) 投入完畢後，IC控制裝置會自動將輸入電流OFF。
(註3) 在投入迴路的外部，請勿加入將投入訊號OFF的接點。
可能會發生VCS無法投入的情況。
(註4) IC控制裝置具備防止反覆投入迴路。
在外部(盤側)無須組成防止反覆投入迴路。

(Note 1) Input signals shall be over 0.2 sec.
(Note 2) IC-control device will automatically switch input current to OFF after input.
(Note 3) Please do not add junction to the OFF terminal of input signal in the external circuit to avoid VCS input failure.
(Note 4) IC-control device is provided with protection circuit from an anti-pumping.



電容跳脫電源裝置接線例
VS-T1A、T2A (另售附屬配件)

Capacitor trip device (Example)
VS-T1A、T2A (Optional accessories)



輔助回路連接器端子號碼
Auxiliary circuit contactor terminal number

固定型(無保險絲) Fixed type (without fuse)	抽出型(附保險絲) Draw-out type (with fuse)
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IC：IC控制裝置
LS1：連動接點(僅抽出型有附)
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MCX：投入用輔助繼電器(非提供品)
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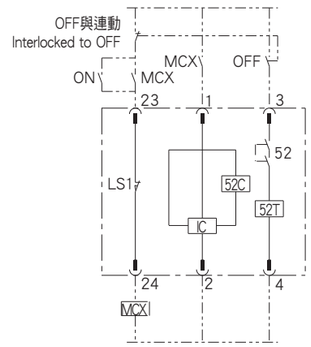
LS2: PF blowout display junction
MCX: Auxiliary relay for closing (excluding in supply)
PF: Power fuses (Optional accessories)
ON: Closing switch (Not supplied)
OFF: Tripping switch (Not supplied)

(外部繼電器回路範例)
本外部接線例是透過構成自我保持回路，
給予0.2秒以上投入訊號的迴路範例。

Wiring diagram for external relay circuit (Example)
The external relay circuit refers to the example of self-maintain circuit by giving input signals over 0.2 sec.



■ 一般應用範圍

● 使用環境

VCS・SF型高壓真空電磁接觸器是依照IEC 60470(高壓交流電磁接觸器)的規格所製造，請在規格上正常使用。

特殊使用狀態

要在特殊狀態下使用時請進行洽詢。

在灰塵較多的地方、有腐蝕性氣體的場所或者室外電箱等高濕度的環境下使用時，要在變電箱進行防塵、防腐蝕、防水、結霜對策。

經常使用狀態	特殊使用狀態
・周圍溫度最高不超過40℃；最低不超過-5℃ ・標高1000m以下的場所 ・不會受到過度水蒸氣、灰塵、鹽害、震動等影響	・劇烈有污損(灰塵、鹽風等)的場所 ・高濕度(冰雪較多的地點、梅雨期間電箱濕度會增加的地點、容易結霜的地點) ・有腐蝕性氣體的地點(化學工廠、熱處理工廠)

● 關於突波保護裝置的適用性

VCS・SF所使用的是低突波真空遮斷器。若運用於電動機的寸動運轉或是老舊的電動機時請使用CR突波抑制器來進行負載機器的突波保護。

開閉突波保護裝置適用標準

負載機器	電動機 發電機	模鑄變壓器	油式變壓器	H種乾式變壓器 (註2)
是否需要開閉突波保護裝置	不要 (註1)	不要	不要	不要

(註1)若必須頻繁進行寸動運轉，請安裝C-R突波抑制器。

(註2)H種乾式變壓器，是指對於衝擊波耐電壓性能，在6.6kV時有35kV以上，在3.3kV時有25kV以上的變壓器型式。

● 關於降壓啟動回路的適用性

若為降壓啟動，則依據啟動補償器的條件等，進行中性點斷路器的電極開路時，有時偶爾會發生過電壓的情況，因此並不適用於6kV回路上的降壓啟動。(可適用於3kV回路上的降壓啟動。)

■ General applications

● Working environment

VCS・SF type High-Voltage Vacuum Contactor Switches is manufactured according to the IEC 60470 spec. (for High Voltage AC Electromagnetic Contactor). Please apply under the normal condition within the spec...

Special working condition

Please consult manufacturer if special working condition is required. When applied in the dusty, with corrosive gaseous places or outdoor control box with high humidity, it is necessary to take anti-dust, anti-corrosion, water-proof and anti-condensing facilities for the control box.

Common working condition	Special working condition
・The ambient air temperature does not exceed 40℃, and the minimum ambient temperature is -5℃ ・The altitude does not exceed 1000 meters ・The place where free from influence of excessive steam, dust, salt and vibration	・Drastic with dirt (dust, salty wind) places ・High humidity (icy, snowy locations, raining seasons, where humidity of control box will get high, easy to condense) ・Places with corrosive gaseous (chemical factories, heat treatment factories)

● Surge prevention device

The contactor uses a low-surge vacuum interrupter. However, when having the motor perform inching operation or applying the contactor to an old motor, use the CR type surge absorber to prevent surges from a loading device.

Example of standards for applying switching surge prevention devices

Load device	Motor/ generator	Mold transformer	Hydraulic transformer	H-type dry transformer (★2)
Whether switching surge prevention device is needed	Not needed (★1)	Not needed	Not needed	Not needed

★1: When the motor frequently performs inching operations, attach the C-R type surge absorber.

★2: For a 6.6kV H-type dry transformer, its lightning impulse withstand voltage must be 35kV or more for a 3.3kV transformer, it must be 25kV or more.

● Reduced-voltage activation circuit

For reduced-voltage activation, when a neutral point switch is opened according to the activation compensator conditions, overvoltage may be generated. Therefore, the contactor cannot be applied to reduced-voltage activation on the 6kV circuit. (The contactor can be applied to reduced-voltage activation on the 3kV circuit)

● 關於電容回路的適用性

若為電容的開閉，則在電容開路後，殘存的電壓尚未完全放電的狀態下，若再度投入接觸器，接觸的極間將會產生極大的過電壓，因此請勿在開路後5分鐘以內又再行投入。若以自動控制等在短時間再行投入時，請採用搭載放電線圈的電容器。

此外，請設定可以在操作上發生瞬間「開・關」動作的順序。

電容的開閉依據進入電流等的大小，其電氣上的開閉壽命會不同。因此實際使用時，請每隔1~2萬次，檢查接點的磨耗量，並測量閥極間的絕緣電阻值。

開關電容容量(6.6kV)	壽命(標準)
~1000kVar	80,000次
2000kVar	30,000次

● 對於相異系統組合回路的適用性

使用接觸器於雙回線等的母線連接用相異系統組合回路時，系統間的高電壓將會施加在同相的電極之間。

由於接觸器的極間耐電壓性能，比真空遮斷器低，因此不適用於此種相異系統組合回路上。

● 連接主回路的極性

關於附有保險絲的抽出形產品，為了增加電力保險絲的保護範圍，建議將上部端子側連接到電源端。

至於接觸器，則無論連接至電源端或負載端，在性能上並無差異。

● Capacitor circuit

When the contactor is turned on before the capacitor fully discharges its residual voltage, an overvoltage is generated between the contactor electrodes. Therefore, do not turn on the contactor within 5 minutes after the circuit is opened. Use a capacititor with a discharge coil to turn on the contactor after short intervals when using automatic control or anther fuction.

Also, avoid a sequence in which the contactor is turned on immediately after being turned off.

The life of a capacitor used for electroically switching depends on the rush current and other factors.

When using the capacitor for electroically switching, check for abrasion of the contactor and measure its insulation resistance between the valve electrodes after every 10,000 or 20,000 switchings.

Capacitance of ON/OFF switch (6.6kV)	Life span (STD)
~1000kVar	80,000 cycles
2000kVar	30,000 cycles

● Circuit jointing different types of lines

When the contactor is used as a circuit for jointing different types of lines such as a double-bus power receiving circuit, high voltage for the lines is applied between the electrodes.

The inter-electrode dielectric strength of the contactor is lower than that of a vacuum circuit breaker, therefore the contactor cannot be used as a circuit for jointing different types of lines.

● Main circuit connection polarity

For a drawer-type fuse contactor, connect the terminal on the upper side to the power supply to widen the power fuse proof range.

For the contactor, there is no difference in performance when it is connected to the power supply side or load side.

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NAN YA PLASTICS CORPORATION Switchgear Unit, Engineering Div.

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(2015. 04. 500)