

Derwent  
Top 100  
Global  
Innovator  
2020

**Susol** *Super Solution*

# Vacuum Contactor



**LS** *ELECTRIC*

# 3.6 / 7.2kV

Performance verification within a short time with the developed earthing switch



- Rated short time : 1 second
- Standard duty cycle : CO
- Compatible with existing product (Tri-MEC)
- Equipped with a wide range of cradles:  
Fixed type, E, F, G, B, M and H-class
- CB compartment for MCSG (Phase-to-phase 150mm VCS)  
- Box-type cradle available

### Diverse control power

- DC 110, 125, 220V - AC 110, 125, 220V

### Various auxiliary devices

- VCS Part: Locking magnet, key lock, button cover, button padlock, padlock (H-type door interlock) and fuse checker
- Cradle part: Position switch, earthing switch & accessories, door and door interlock
- Others: Racking in / out Handle, CTD (Condenser trip device) and PT (Potential transformer)

### Automatic racking-in / Out display

### Applied standards & certification

- IEC62271-106
- V-check (Kesco) certification
- Certification for classification: LR (Lloyd's register) and NK (Nippon kaiji kyokai)

### Authorized agency's development testing & certification

- Authorized development testing agency based on IEC62271-106
- Verification for PF-40kA short circuit protection coordination
  - Breaking test: 40kA short-circuit breaking successful
  - Making test: 40kA short-circuit making successful
- KAS-certified V-check mark



# 12kV

GB/T 14808 Standard - Performance verification within a short time (4sec)



- Rated short time : 4 seconds
- Standard duty cycle : CO
- Compatible with existing product (Tri-MEC)
- Equipped with a wide range of cradles: M and H-class
- CB compartment for MCSG (Phase-to-phase 150mm VCS)
  - Box-type cradle available

### Diverse control power

- DC 110, 125, 220V - AC 110, 125, 220V

### Various auxiliary devices

- **VCS Part:** locking magnet, key lock, button cover, button padlock, padlock (H-type door interlock) and fuse checker
- **Cradle part:** Position switch, earthing switch & Accessories, door and door interlock
- **Others:** Racking in / out handle and lifting hook

### Automatic racking-in / Out display applied standards & certification

- IEC62271-106

### Authorized agency's development testing & certification

- Authorized development testing agency based on IEC62271-106 (KERI)
- Verification for PF-40kA short circuit protection coordination
  - Breaking test: 40kA short-circuit breaking successful
  - Making test: 40kA short-circuit making successful



# Susol Vacuum Contactor

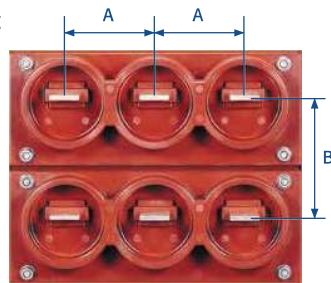
## Characteristics

Compatible with domestic / Overseas VCS manufacturers' models



Note) Please refer to the contact information for retrofit products.

### Integral bushing



A : Clearance  
B : In-phase spacing

### Vacuum Interrupters



### Compatibility

It is a customer-oriented product considering its easy maintenance and economic feasibility. In particular, it is easy to replace the product because the new / Old model's body, distance between the racking-in / Out rails of cradles, clearance and in-phase spacing are the same.

### High-performance, high-reliability and long life

The vacuum interrupter (VI) complies with international standards, including IEC, ANSI and NEMA; and it is highly reliable as it collectively performs brazing at the vacuum furnace.

### Outstanding mechanical strength and degassing

It uses a high alumina ceramic tube for better mechanical strength. With superb degassing at high temperature, it demonstrates excellent durability and frequency in switching.

### High-speed breaking and arc discharge in a short time

Because of the fast vacuum insulation recovery characteristic, the current is cut off at the initial current zero point after contact opening, so contact damage and losses are minimal.

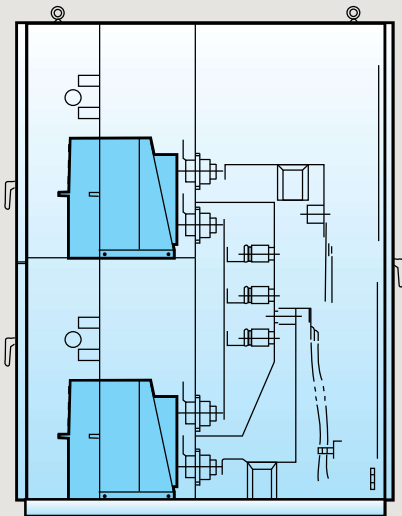
## Various safety devices for users



- Racking-i/Out interlock device
- Truck for external racking-in/out
- One-mold fuse holder
- A wide range of dual protective devices
- Power fuse operation indicator (Fuse checker) and micro-switch



### Metal clad switchgear



#### Metal clad switchgear applied

An integral cradle bushing (Class B) and fuse holder are structured in one mold, which can be applied to the metal clad switchgear.

#### Interlock device

An interlock device is basically built-in for the user's safety when racking in/Out.

#### Mechanical interlock type

2 VC units are connected with the mechanical interlock device for stable and convenient motor (Reverse) driving and commercial/ Back-up power transfer.

#### Truck for external racking-out and lever device

It is a device that may rack in/ Out the VC units without opening the door outside the panel, minimizing the risk of electric shock.

## Body & cradle

### Fixed type (3.6/7.2/12kV)

- Fixed type is divided into a standard type and fuse-combined type.



3.6/7.2kV

3.6/7.2kV (Fuse-combined)

12kV

### Lever type (3.6/7.2kV)

- Lever type is divided into a standard type and fuse-combined type.
- E/F/G-class cradles are applicable.



3.6/7.2kV

3.6/7.2kV (Fuse-combined)

### Cradle

- **E-class cradle:** An economical cradle in a basic structure.
- **F-class cradle:** An E-class cradle attached with an insulating shutter.
- **G-class cradle:** A premium E-class cradle with an insulating shutter and bushing.



E-class cradle

F-class cradle

G-class cradle

# 12kV

## Screw type (3.6/7.2kV)

- Screw type is divided into a standard type and fuse-combined type.
- B/H-class cradles are applicable.



### Cradle

- **B-class cradle:** A premium E-class cradle with an insulating shutter and bushing.
- **H-class cradle:** A premium cradle with an insulating shutter, bushing and earthing switch.



## Screw type (12kV)

- 12kV VCS screw type is divided into a standard type and fuse-combined type.
- M/H (12kV)-class cradles are applicable.



### Cradle

- **M-class cradle:** A premium cradle with a metal shutter and bushing.
- **H-class cradle:** A premium cradle with a metal shutter and bushing, bushing and earthing switch.



**Rated current calibration based on the ambient temperature**

When the ambient temperature exceeds the normal setting temperature, the equation below may be used to estimate the applicable current value.

$$I_a = I_r(\Theta_{max} - \Theta_a) / \Theta_r)^{1/2}$$

**I<sub>a</sub>** : Allowable, constant transport current at the actual ambient temperature  $\theta_a$

**I<sub>r</sub>** : Rated current at the ambient temperature 40°C

**Θ<sub>max</sub>** : Total temperature at the available hottest spot

**Θ<sub>a</sub>** : Ambient temperature expected at -30°C and 60°C

**Θ<sub>r</sub>** : Allowable temperature at the hottest spot from rated current

Ex) Estimating the load current that may be applied at the contactor (Rated current: 400A)'s ambient temperature 55°C

$$I_a = 400 \times ((105 - 55) / 65)^{1/2} = 400 \times 0.87 = 351A$$

**Applicable load current according to changes in the ambient temperature**

Rated current (A)	Ambient temperature [°C]								
	20	25	30	35	40	45	50	55	60
400	400	400	400	400	400	384	368	351	333
200	200	200	200	200	200	192	184	175	166

**Applicable load current according to changes in the ambient temperature**

