

# 7.2 kV Medium Voltage Switchgear



**VC-V6A (VCB)**

**VC-VS6A (VCS)**

Comply with IEC62271-200



# The VC-V6A and VC-VS6A conforms to IEC 62271 and manufactured utilizing Fuji Electric state-of

## ***IEC compliance (including third-party testing)***

- IEC 62271-1 Common specifications
- IEC 62271-200 Metal-enclosed switchgear
- IEC 62271-100 Circuit-breakers
- IEC 62271-102 Earthing switch
- IEC 62271-106 Contactors

## ***Safety Feature***

- Loss of service continuity: LSC2B
- Partition class: PM
- Internal arc classification: AFLR
- Automatic metallic shutters
- VCB and VCS interlocked with compartment door
- Rear cover interlocked with Earthing switch
- Gas cooler (option compatible)



**-200 standard and is designed** *7.2 kV Medium Voltage Switchgear*  
**-the- art technology.**

**Feature**

### ***Easy Maintenance and Installation***

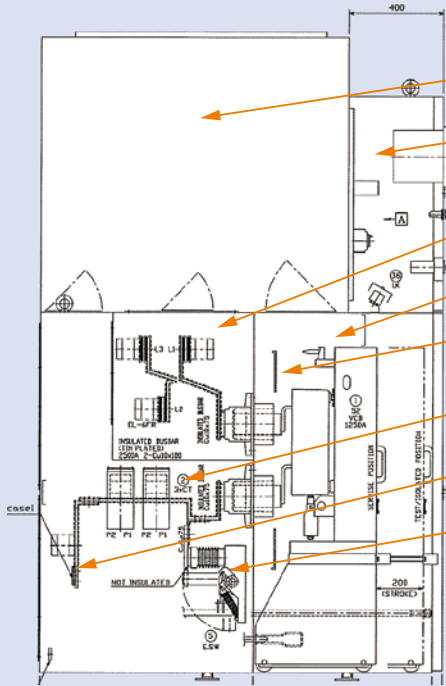
- VCB and VCS does not need to applied a lifter at withdraw out of switchgear.
- Separate protection and control on top of VCB and VCS compartment
- Test terminal located on the front of LV panel
- Easy access for the main-cable termination









### ***Components***

- VCB is compatible with NE type of Fuji Electric
- Accomodate cast-resin, ring-type CTs for VCB and wound-type CTs for VCS
- The voltage transformer for busbar is draw-out type and can be performed Maintenance easily and safety

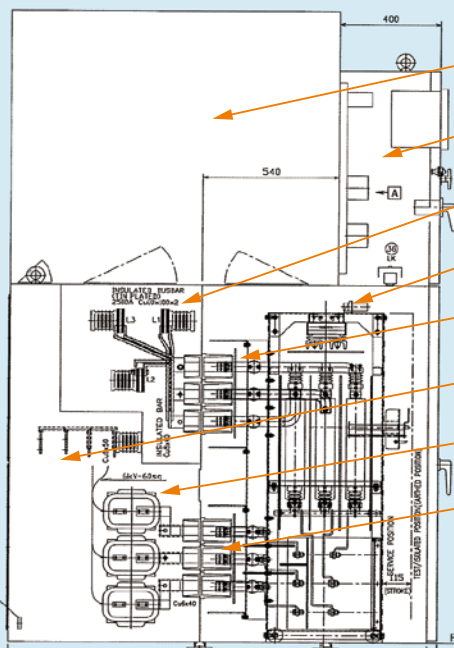











## VC-V6A | VCB



-  Gas cooler (option)
-  Low-voltage compartment
-  01 Busbar compartment
-  05 Circuit breaker compartment
-  02 Automatic shutters
-  Current transformers
-  Cable compartment
-  03 Earthing switch

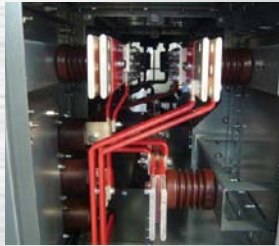
## VC-VS6A | VCS



-  Gas cooler (option)
-  Low-voltage compartment
-  01 Busbar compartment
-  02 Contactor compartment
-  03 Automatic shutters
-  Cable compartment
-  Current transformers
-  04 Automatic earthing switch (Motor feeder only)
-  05 VCS compartment

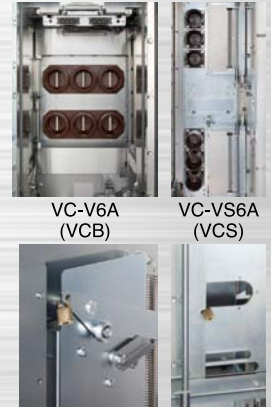
### 01 Busbar Compartment

Busbar up to 2,000 A normal current 25/31. 5/40 kA short circuit current  
Copper busbar, air insulated, epoxy coated  
31.5 kA is arc fault withstand



### 02 Automatic Shutters

- ▶ Individually operated
- ▶ (Automatic reset when breaker is inserted)
- ▶ Can be padlock in closed position



### 03 Earthing Switch

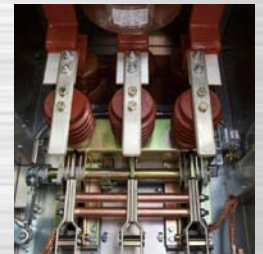
- ▶ Operated from front of switchgear
- ▶ 'Closed/Open' status visible from front circuit breaker window
- ▶ Mechanical interlock option with the cable compartment door



### 04 Automatic Earthing Switch

Mechanical interlock with the circuit breaker compartment such that:

- ▶ Earth switch cannot be 'Closed' with the circuit breaker in the 'Service' position
- ▶ Circuit breaker can only be moved from 'Test-Disconnected' to 'Service' position when Earthing Switch is 'Open'



### 05 Circuit Breaker/Vacuum Contactors Compartment

#### Circuit Breaker Racking Mechanism

- ▶ Manual circuit breaker/contacter truck racking mechanism
- ▶ Safety interlocks
- ▶ Compartment door is mechanically interlocked with the circuit breaker/contacter truck such that door can only be opened with the truck is in the 'Test-Disconnected' position
- ▶ Breaker secondary contact interlocked with the breaker and can only be removed in the Test position
- ▶ Viewing window provides visual indication of the position of the circuit breaker/contacter truck

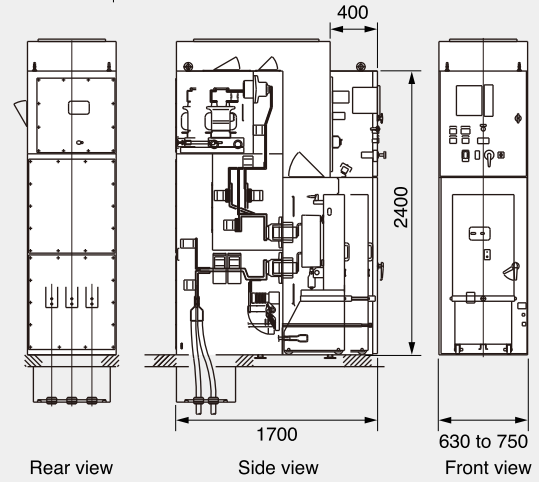


## Electrical Ratings/Dimensions

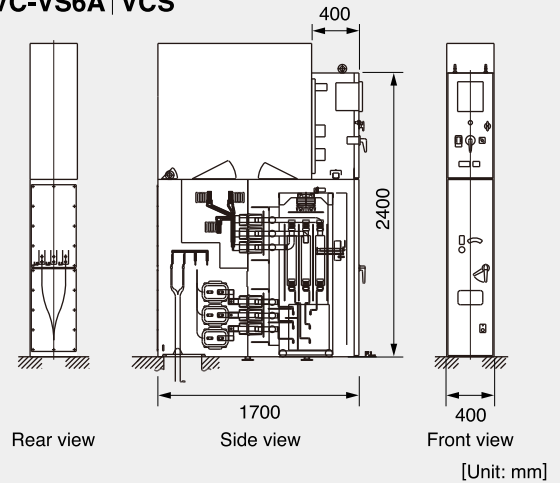
Type	VC-V6A	VC-VS6A
Applied standard	IEC 62271-200	
Rated voltage	7.2 kV	
Rated frequency	50 Hz, 60 Hz	
Busbar rated current	630 A, 1250 A, 2000 A	
Load side rated current	630 A, 1250 A, 2000 A	200 A, 400 A
Rated short time withstand current	31.5 kA 3s, 40 kA 3s	
Internal arc classification (IAC)	AFLR 31.5 kA 1 sec	
Rated power-frequency withstand voltage	20 kV 1 min	
Rated lightning impulse withstand voltage	60 kV	
Loss of service continuity category	LSC2B-PM	
Dimensions	Height	2400 mm*1
	Depth	1700 mm
	Width	630/1250 A: 630 mm 2000 A: 750 mm
		400 mm

\*1: Gas cooler dimensions are excluded

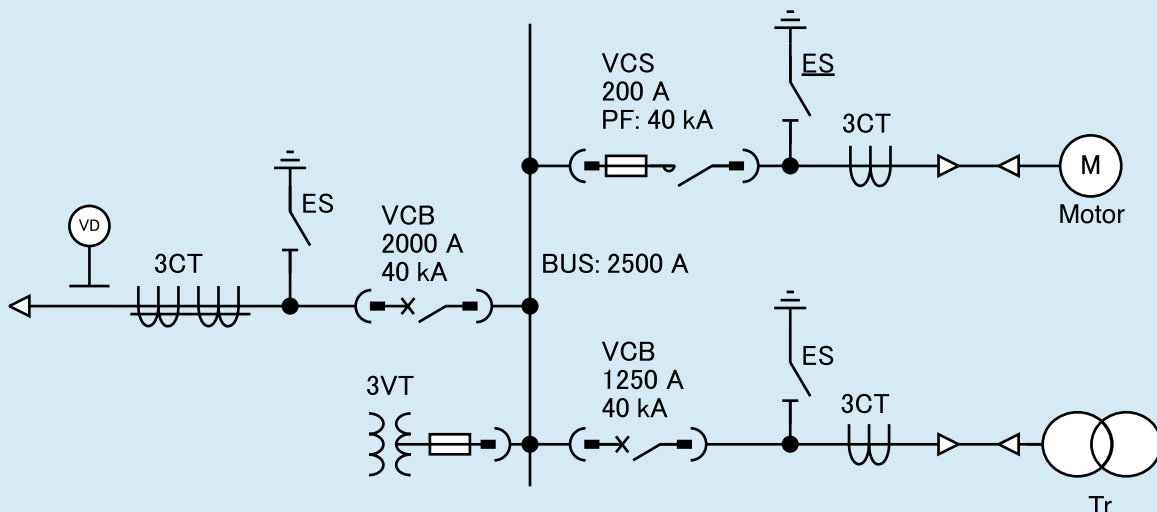
### VC-V6A | VCB



### VC-VS6A | VCS



## Single line diagram



### • Type Testing

Type Testing on the VC-V6A(VCB), VC-VS6A(VCS) was performed based on the International Standard IEC62271-200, and the main typing tests performed are as follows.

### • Dielectric Tests

This test verified that the main circuit can withstand the applied voltage when the standard rated lightning impulse withstand voltage and power-frequency withstand voltage are applied.

### • Temperature Rise Test

The temperature rise of the various parts of the switchgear or auxiliary equipment for which limits are specified, shall not exceed the values specified in IEC62271-1.

### • Short Time and Peak Withstand Current Test

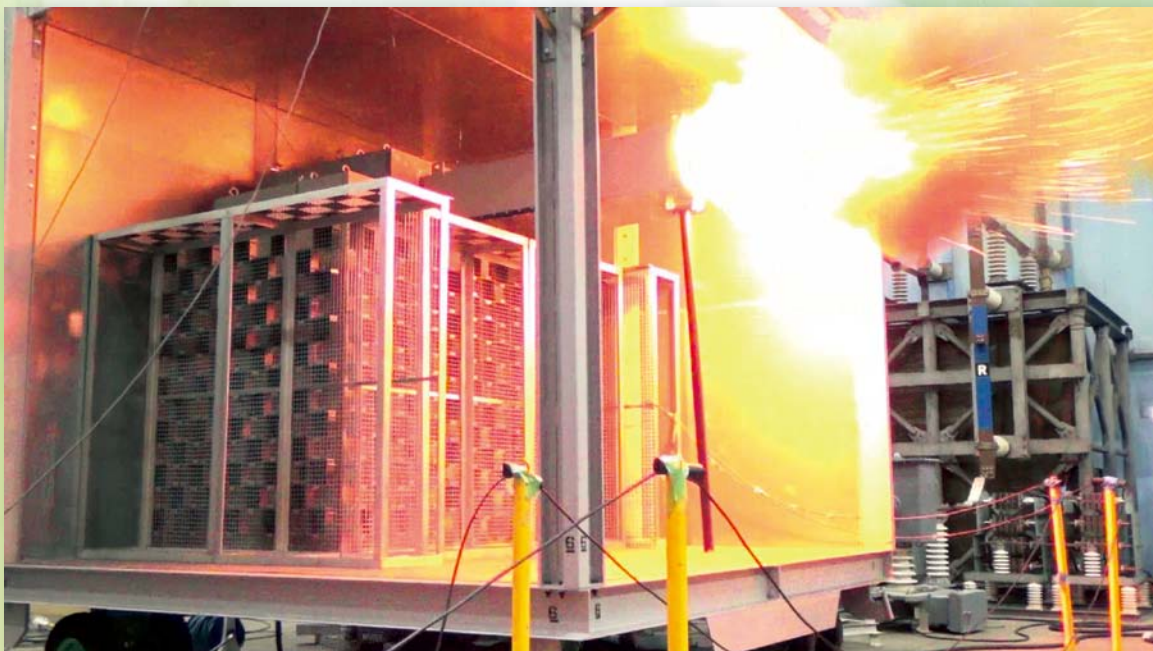
Main circuits and, where applicable, the earthing circuits of the switchgear and controlgear shall be subjected to a test to prove their ability to carry the rated peak withstand current and the rated short-time withstand current.

### • Internal arc Test

The internal arc test is intended to verify the effectiveness of the design in protecting persons in case of an internal arc, when the switchgear and controlgear is in normal service condition. The internal arc test is only applicable to metal-enclosed switchgear and controlgear, intended to be qualified as IAC classified.

### • IEC certification

VC-V6A has been certified (IEC62271-200 ed2.0) by a third-party certification body with STL member.



Internal arc Test



**Intertek** Certificate No. 20735

## ASTA Certificate of Complete Type Tests

Laboratory Ref. No. 103588

**Apparatus:** 7.2 kV / 20 kV / 60 kV (U<sub>1</sub>/U<sub>2</sub>/U<sub>3</sub>), 50 Hz, metal-enclosed switchgear and controlgear comprising a two panel arrangement incorporating a horizontal main busbar system with tinned copper busbar, one 1250 A VCB panel, one 630 A VCB panel fitted with Fuji VCBs, type H53106W-12M-E and three-pole earthing switches.

**Designation:** VC-VSA-024A

**Client:** Fuji Electric Co., Ltd  
1-1 Takakukada 4-chome,  
Nishi-ku, Kobe-city 651-2271 Japan

**Manufacturer:** Fuji SMBE Pte Ltd  
No. 15 Senoko Avenue  
Singapore 758305

**Tested by:** Ausgrid Testing & Certification  
18 Mars Road Lane Cove West NSW 2066 Australia

**Date(s) of tests:** 18 August 2016 to 31 January 2017

The apparatus, constructed in accordance with the description, drawings and photographs incorporated in this certificate has been subjected to the series of proving tests in accordance with:

IEC 62271-200 : 2011 Edition 2.0 Clauses 6.2, 6.4, 6.5, 6.6, 6.7.1, 6.9, 6.10, 6.11, 6.101, 6.102, 6.105, Annex AA and STL Guide to IEC 62271-200, Issue 3.0 July 2015  
IEC 62271-102 : 2013 Edition 1.2 Clauses 6.6, 6.101, 6.102.3 and STL Guide to IEC 62271-102, Issue 1.3 July 2016


The results are shown in the Record of Proving Tests attached hereto. The values obtained and the general performance is considered to comply with the above Standard(s) and to justify the ratings assigned by the manufacturer as stated below.

**For ratings assigned by the manufacturer and proved by the tests see pages 1 and 2.**

The Certificate applies only to the apparatus tested. The responsibility for conformity of any apparatus having the same or other designations rests with the manufacturer.

This Certificate comprises this front sheet, 2 ratings pages plus 157 other pages and 21 drawings as detailed on page 3.

Only integral reproductions of this whole certificate or reproductions of this page accompanied by any rating pages are permitted without written permission from Intertek Testing and Certification Services, Centre Court, Meridian Business Park, Leicester, LE19 1WD, England. Contact [asta@intertek.com](mailto:asta@intertek.com) Tel +44 (0) 116 203 0330 [www.intertek.com](http://www.intertek.com)



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*J. Child* J. Child  
ASTA Observer

*P. Jones* Certification  
Manager

22nd January 2018 Date

E181018 ASTA Certificate No. 20735 (Laboratory Reference No. 103588) issued on 20/1/2018

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Information in this catalog is subject to change without notice.

2018-12(L2018b/D2015)OD2FOLS Printed in Japan