

# Low-Voltage Equipment

Product Catalog

Automatic Transfer Switches



## 1955 ~ 1988 \_ History of Technology, Open Up New Vistas

Kwangmyung Electric Co. was founded in 1955 and started as a neutral electricity manufacturer in January, 1968 and moved the plant to Seongsu-dong in April, 1972. The company prepared a foundation as a technology company through a technical tie-up with AICHI Company and VSS & ATS of Japan in April, 1981 and a technical cooperation with MEIDENSHA Company of Japan and a contract was concluded on Korean retail stores (V.I) in December of the same year. VCB 7.2kV-Class Type Test (localization) was completed in July, 1982 and VCB 25.8kV-Class MMSG 2 Type and 7.2kV Type Tests were completed in September of the following year. We were designated as an electric parts and materials development company (Ministry of Commerce, Industry and Energy) for Type1 other than a vacuum contact in July, 1986 and established a technical cooperation with LINDSEY Company, USA on Polymer Concrete in December of the following year. In addition, 4 types of ACB were developed in June, 1988 and successfully localized them (KEMA Authentication, Netherlands).

## 1989 ~ 1999 \_ Opportunity, Challenge and Remarkable Leap

The company name was changed to Kwangmyung Electric Generation Co. in June, 1989 and an affiliated technology lab was founded in December of the same year. We obtained KS marks for VCB 7.2kV, 8kA and 12.5kA in 1990 (Industrial Advancement Administration) and passed the development test for ACB 2 Types (KERI) in 1991 and for outdoor VCB and Gas Insulated Load Break Switch (PGS) (CESI, Italy) in 1993. We acquired the KS mark for Gas Insulated Load Break Switch (PGS for manufacturing) in 1995 and were awarded with the first Export Award (KEMC). We began exporting ATS to GENERAC.CORP, USA in 1995 and obtained KSA-QA ISO9001 certificate. We moved the office to Seoul in August, 1996 (Neung-dong, Gwangjin-gu, Seoul) and successfully developed Manual/ Motorized ASS 25.8kV 200A in December. Also, VCB development test was completed in 1997 (POWER TECH, CANADA), developed L/A 5kA in 1998 (Polymer Rubber Type), developed VCB 25.8kV, 31.5kA, 38kA and 40kA and acquired BVQ1 ISO 9001 certificate. A joint company with China was founded in 1998 and we were awarded IR52 Jang Young Shil Award in February of the following year (Maeil Business Newspaper) and selected as one of the 50 firms with qualitative competitiveness in 1999 which displayed our technical skills and quality that we strengthened for years.

## 2000 ~ 2016 \_ VITZRO, Stepping Forward to the World

The company name was changed to VITZRO EM Co. in 2000. We laid a foundation for a rapid growth by developing VCB 12kV 1250A 25kA/15kV 1200A 25kA and registering in KOSDAQ stock market. A new plant was constructed in July of the following year (located in Seonggok-dong, Ansan, Gyeonggi Province) and we were designated as a promising small business (Gyeonggi Province Office), an electric parts and materials development company and INNO BIZ company (Joint Korean Economic Newspaper/Small and Medium Business Administration). We sped up on development of new technology and products and developed Cable Termination kits, Insulation Cover, Feed-type ASS (auto & manual), Outdoor VCB Bushing (Polymer Type) and Processed Gas Insulated Load Break Switch in 2002, VCB for nuclear power, ACB for nuclear power (508V 30/50/65kA), Current Limit Power Fuse and so forth in 2003. We were also awarded with various certificates and awards that prove our quality and technology such as a reliability certificate on Processed Gas Insulated Load Break Switch (PGS) in 2004 (R Mark, Korean Agency for Technology and Standards), a Certificate of Quality & Environment System and Aerospace Quality System (ISO 9001 & AS9100, ISO 14001) and a grand prize at the 1st Logo & Symbol Mark Contest (Ministry of Commerce, Industry and Energy Award). We obtained GD mark in 2005 and finally got a 1,000 ten million dollar-export prize in November, 2006, confirming the remarkable growth of VITZRO EM.

## 2017 \_ VITZRO EM New Subsidiary

In July 2017, VITZRO EM starts its electric-power equipment business through physical division. Through product development using VI technology, we plans to grow into a only one of electrical equipment industry, VITZRO EM has a vision to become a global leader based on its technical superiority and business expertise.

# Products Guide

Best products of electric equipment field including LV and HV from designing, manufacturing, installing and diagnosing the equipment to composing the power system, it is based on the accumulated, global standard technology and continuous R&D.

## LV Equipment



### Air Circuit Breakers

- ANSI C37.13/EED1200 Certification for Nuclear Power
- Adopted multifunction digital trip relay
- KS, KERI, IEC Certification
- Compact, lightweight
- Standard Specification: IEC 60947-2
- Implementing remote monitoring and control communication



### Earth Leakage Circuit Breakers

- Standardized main sizes, easy manufacturing of panel
- Composed of max. 225AF, 2/3/4P
- MCCB / ELCB same frame
- Compatible installation of new and old products
- Adjustable sensitivity current, Max. 500mA



### Auto Transfer Switches

- UL1008 Certification, KERI Type Test completed
- Maximum short circuit capacity in the country
- Optimal form that enables installation of 600mm-panel board for all types
- Ensure stability through separately sealed structure for each phase



### Thermal Overload Relay

- Direct connection to a magnetic contactor
- Finger proof cover can be installed
- Separation of power/operation part



### Molded Case Circuit Breakers

- UL Certification, Max. 800AF
- Max. 1200AF, fully equipped with all series 3/4P
- MCCB / ELCB same frame
- Realization of various auxiliary devices
- Compatible installation of new and old products



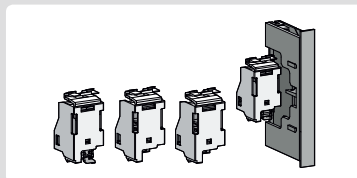
### Miniature Circuit Breakers

- Minimum size, easy to apply panel board
- Increase of breaking capacity (5kA at AC 220V)
- Equipped with leakage display button



### Magnetic Contact

- Improved Quality and Decreased Noise
- Convenient and Safe structure
- Enhanced safety by adopting Transparent Safety Cover



### Auxiliaries

- Standardized auxiliaries, easier to apply
- AL, AX, UVT, Shunt - various auxiliaries

## MV Equipment



### Vacuum Circuit Breakers

- Rated breaking time of all types - 3 cycle
- Nuclear power certification ANSI C37.06 / EED1100
- Developed the first domestic Embedded VCB
- Passed KERI, KEMA, CESI development test
- Standard Specification: IEC 62271-100 [M2, E2, C2 Class]



### Load Break Switch/Auto Section Switch

- Maximum fuse combined capacity in the country—Max. 100A
- LA & PF external combination structure
- Easy to design single-body panel through optimal form design
- Standard Specification: IEC 62271-105, IEC 60265-1, KEMC1126
- Compatible structure for LBS and ASS



### Vacuum Contact Switches

- Rated breaking time 6.3kA(16.4kA peak)
- Minimize switch surge through optimal VI design
- Standard Specification: IEC 60470, IEC 60282-1
- Realization of mechanical interlock between VCSs or with other devices



### Vacuum Interrupter/Embedded Pole

- Maintain high-vacuum state through automation process
- Compact and lightweight, durable design
- Collect and store all manufacturing information
- Excellent mechanical strength and degassing
- High-speed breaking and short arcing time

## MV Equipment



### Main Circuit Breaker for Rolling Stock/ Vacuum Train Breaker(MCB/VTB)

- The sole main circuit breaker for rolling stock in the country
- Excellent seismic performance
- Detection of operating pressure and auto trip function
- Stable breaking feature (AC, DC line)



### Gas Insulated Load Break Switch (GLBS)

- Division of lines and tapped line applied
- 3 position function(ON, OFF, Earth)
- Increase safety with hot-line display
- Certificate on reliability by KATS
- Low pressure display and lock function



### Vacuum Transfer Switches

- The one and only Medium Voltage Transfer Switch in Korea
- Electrical & Mechanical Interlock available.
- Economical optimization [Two sides of panels and two pieces of VCBs are not necessary.]
- Minimized outside dimension which can be possible with multistage loading.



### Current Limit Power Fuse

- Optimal current limit feature
- Protection through full back-up with high breaking capacity
- Maximum striker motional energy in the country
- Simplified with 4 types of fuse forms
- Protect transformers, motors, Capacitor and wires

## IED & Controller



### Digital Protection Relay VIPAM

- System protection required, relay element provided
- Store history of faults(trouble) and wave form
- Provide analysis function through PC interlocking
- RS422/485 communication support
- English/Korean language support



### Digital Control Meter VIMAC, VIDER

- Power quality analysis and breaker control
- Automatic power factor control (APFC), harmonic analysis

## Protective Device



### Lightning Arrester/Surge Absorber(LA/SA)

- Optimal motion of Gapless type
- Scatter prevention when explodes using a polymer LA
- Can be used outdoors using a polysil SA
- Fire prevention due to nonflammable material



### Surge Protective Device

- IEC and KS standard certification
- Built-in fuse with disconnecting device function
- Excellent TOV failure feature
- Operation status display lamp (LED Lamp)
- Easy to install using a Plug In type

# VITZRO EM

# A6 Automatic Transfer Switches

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# Internal Accessories

## Automatic Transfer Switches 100~3200A

Innovative convenience and ergonomics are adopted.

It is also a premium product that delivers user-centric reliability while delivering the best solution for a wide range of customer environments with world-class reliability.

### Certificate & Approval

- It is a product applied with the accumulated switch design and application technologies, operating machine design technology and insulation design technology.
- It is a product with the largest short circuit capacity and applied with the international standards IEC60947-3 (Transfer Switching Equipment) and IEC60947-6-1 (Transfer Switching Equipment).
- It is an automatic transfer switch equipped with the breaking capacity and its reliability has improved (Obtained a short circuit certificate through KERI Type Test).
- It has both-way breaking capacity.

### It is possible to install a 1000 mm panel board for all types through an optimal reduction of exterior structure

- Standard type up to 73% less cosmetic. / Economic type up to 48% less external.
- It can be built inside the movable generator or UPS since it is in a miniature structure.
- It is possible to supply a stable power by composing a separate system.

### The transparent terminal cover and insulation molding provides safety

- Transparent insulation cover for access terminals enhances insulation performance against ingress of foreign material and improves operator safety.
- A sealed structure with fully molded insulation to maximize the safety of the operator and lifespan of the device.
- Transparent terminal cover adoption makes it easy to identify terminal connections and makes it easy to work with terminal covers when carrying out a connection.
- It stressed harmony with the surrounding equipment with wired external structure.



### It is easy to carry out maintenance and designed in a safe structure

- It is easy to attach/detach the insulation cover of the front part so that it is easy to identify the structural health of the breaking part and connecting terminal part.
- It is easy to check the switching performance and main contact state through a simple, removable Arc Shute structure.
- The operational part is protected by a steel cover and the structural health of solenoid can be checked by a simple removable.

### Each phase has been individually sealed for enhanced prevention and safety

- Individual moldings and closures on each of the phase improve blocking performance and increase device lifespan.
- Short arc time and low contact consumption during opening and closing causes semi-permanent life.
- The open operation by means of separate breaking springs ensures consistent and reliable shutdown performance regardless of operating voltage.

### Improved safety for users

- The protection and breaking capacity of main points have been enhanced by the design of the trip system after the lines are inserted at the auxiliary contacts Improved safety for users.
- Excellent opening and closing function enables low-arcing arc production for longer product life.

### Compact design for customers makes it convenient

- The volume sensitive shape user friendly image was inventoried and the whole curve was applied to create innovation with a simple, beautiful and progressive product image.
- Confidence is emphasized by the clean shape-clearing and well-cleaned adoption of the cable.
- Products in the panel are clear and arranged with clear color application.

# Ratings

## Economic Type ATS W, WP Types

100A ~ 400A



W type Standard Type A ↔ B

WP type Pause Function  
Additional Type A ↔ Pause ↔ B

### Features

#### Safe Design

It provides a safe operation by adopting a dust-proof mold structure at the breaking part.

#### For both AC/DC

The operating circuit can use both AC/DC.

#### One Coil Instantaneous Excitation Mode

- It is a power saving structure with an instantaneous excitation mode in one coil.
- The voltage of operating coil is both AC110/220V [※ Refer to the instruction].

It is an instantaneous operation type where the operation time cannot be adjusted. But, in case of WP type, a Neutral position is added between A-power source and B-power source which enables it to provide a temporary pause function (pause in OFF state) within 30 seconds that is not connected to both A and B power sources in case of transfer operation.

[Ex] When transferring from A-power to B-power

- ① A Opening → ② Pause for 3-30 seconds →
- ③ B Closing

This function is to prevent a short-circuit of load part and power source part by transferring to the other power after a residual voltage is extinct if the existing load is the same as the motor load that generates much residual voltage.

If a pause of more than 30 seconds or OFF status should be maintained, use a standard WN type.

Type		61W	62W			
Rated Current(I <sub>n</sub> )	A	100	200			
Rated Voltage(U <sub>e</sub> )	V	AC480	AC480			
Rated Insulation Voltage(U <sub>i</sub> )	V	AC600	AC600			
Rated Impulse Voltage(U <sub>imp</sub> )	kV	6	6			
Pole	P	3, 4	3, 4			
Throw	T	One Throw	One Throw			
Connection Type	Front	●	●			
	Back	-	-			
Performance						
Short Time Current(1s) I <sub>cw</sub>	kA	5	10			
Short Circuit Peak Current I <sub>cm</sub>	kA	5	10			
With Specific Circuit Breaker	kA	14	25			
Fuse Mounting	kA	200	200			
Switch Capacity <sup>Note1</sup>	Class	AC-33B	AC-33B			
Endurance	Electrical	Cycles	5,000	5,000		
	Mechanical	Cycles	10,000	10,000		
Transfer Sequence		A ↔ B	A ↔ B			
Operation Time	Opening	msec	≤30	≤30		
	Switching	msec	≤60	≤60		
	Off	sec	-	-		
Conditions of Uninterruptible Transfer		3P	4P	3P	4P	
Switching	AC/DC 110V	A	-	-	-	-
	AC 220V	A	8	8	8	8
Dimensions & Weights						
Front Size (mm)		H	171	171	171	171
		W	219	219	219	219
		D	110	110	110	110
Back Size (mm)		H	-	-	-	-
		W	-	-	-	-
		D	-	-	-	-
Weight	Front	kg	2.5	3	3.5	4
	Back	kg	-	-	-	-
Additional Product Information						
Circuit diagram		A6-21	A6-21			
Time chart		A6-18	A6-18			
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Precautions		A6-16	A6-16			

\* Note1) Switching Capacity : AC-33B :

Overcurrent Switching Performance (Closing  $10 \times I_e$ , Breaking  $10 \times I_e$ ,  $\cos\theta = 0.35$ ),  
Rated Load Switching Performance (Closing  $1 \times I_e$ , Breaking  $1 \times I_e$ ,  $\cos\theta = 0.8$ )

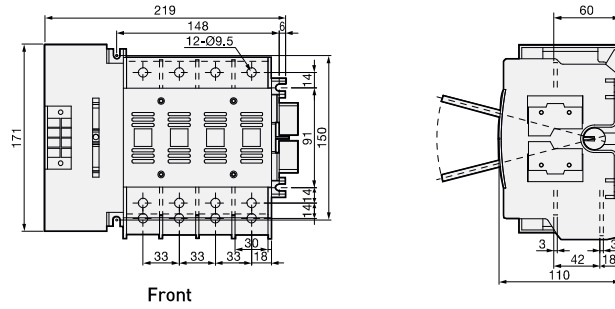


64W			61WP			62WP			64WP		
400			100			200			400		
AC600			AC600			AC600			AC600		
AC800			AC800			AC800			AC800		
8			8			8			8		
2, 3, 4			2, 3, 4			2, 3, 4			2, 3, 4		
Double Throw			Double Throw			Double Throw			Double Throw		
•			•			•			•		
•			-			-			-		
12			5			10			12		
12			5			10			12		
35			14			25			35		
200			200			200			200		
AC-33B			AC-33B			AC-33B			AC-33B		
5,000			5,000			5,000			5,000		
10,000			10,000			10,000			10,000		
A ↔ B			A ↔ Pause ↔ B			A ↔ Pause ↔ B			A ↔ Pause ↔ B		
≤60			≤30			≤30			≤60		
≤200			≤200			≤200			≤200		
-			3-30			3-30			3-30		
2P	3P	4P	2P	3P	4P	2P	3P	4P	2P	3P	4P
7	7	10	5	5	7	7	7	10	8	8	10
3.5	3.5	5	2.5	2.5	3.5	3.5	3.5	5	4	4	5
254	254	254	191	191	191	252	252	252	254	254	254
248	299	350	214	244	274	244	289	334	246	287	348
119	119	119	112	112	112	112	112	112	119	119	119
208	208	208	-	-	-	-	-	-	-	-	-
236	287	338	-	-	-	-	-	-	-	-	-
164	164	164	-	-	-	-	-	-	-	-	-
7.5	9	10.5	4.5	6	8	6	8	10	11	14	18
6	8	10	-	-	-	-	-	-	-	-	-
A6-21			A6-20			A6-20			A6-20		
A6-18			A6-18			A6-18			A6-18		
A6-31			A6-33			A6-33			A6-33		
A6-16			A6-16			A6-16			A6-16		

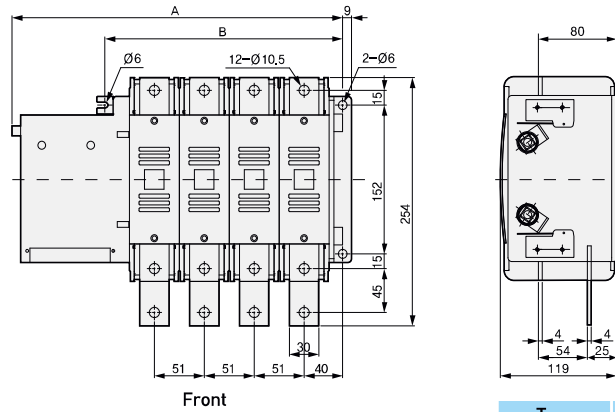
# External Sizes

Low Voltage  
Automatic  
Transfer Switch  
ATS

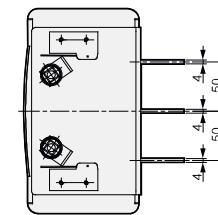
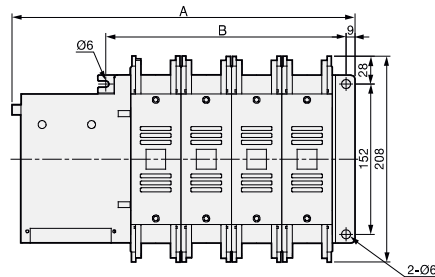
## W Types 61W~62W (100A - 200A)



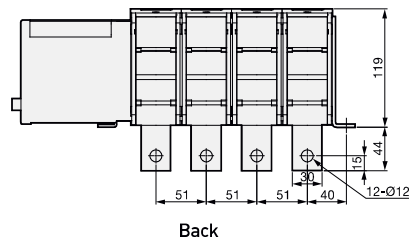
## W Type 64W (400A)



Type	A	B
2P	245	141
3P	296	192
4P	347	243



Type	A	B
2P	245	141
3P	294	192
4P	347	243



# Installations



600A ATS - TransconDevelopers



2000 A thru Lotus for Export



3200A ATS - Bhayander Club



Oriana Business Center



1000 ATS Pharma Company



1600A ATS Mumbai University

## Some of our other installations:

3200A at SRCC Children's Hospital, Mumbai  
Upto 1000A at Tata Cancer Hospital, Varanasi  
Upto 600A at Bombay House, Mumbai  
Upto 1600A at Seawoods Central Mall, Navi Mumbai  
1600A at Sahar Cargo complex  
3200A at Zee Studio, Jaipur  
130Nos, 100A at Noida Metro  
60Nos, 100A at Nagpur Metro  
27nos @ Vasai Mall, Vasai  
Reliance Retail Stores - PAN India

Hiranandani Developers  
L&T Construction  
Della Resorts  
14nos @ IOCL Bldg at BKC, Mumbai  
2000A @ UK27 Hotel, Belgaum  
22nos @ Ace Designers, Bangalore  
6nos @ Godrej Trees, Vikhroli  
1200A CTTS @ IOCL, Ujjain refinery  
1200A + 3nos @ HDIL, Andheri



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