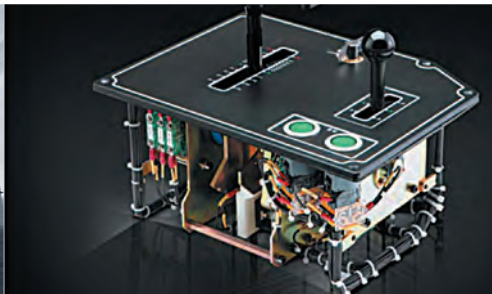
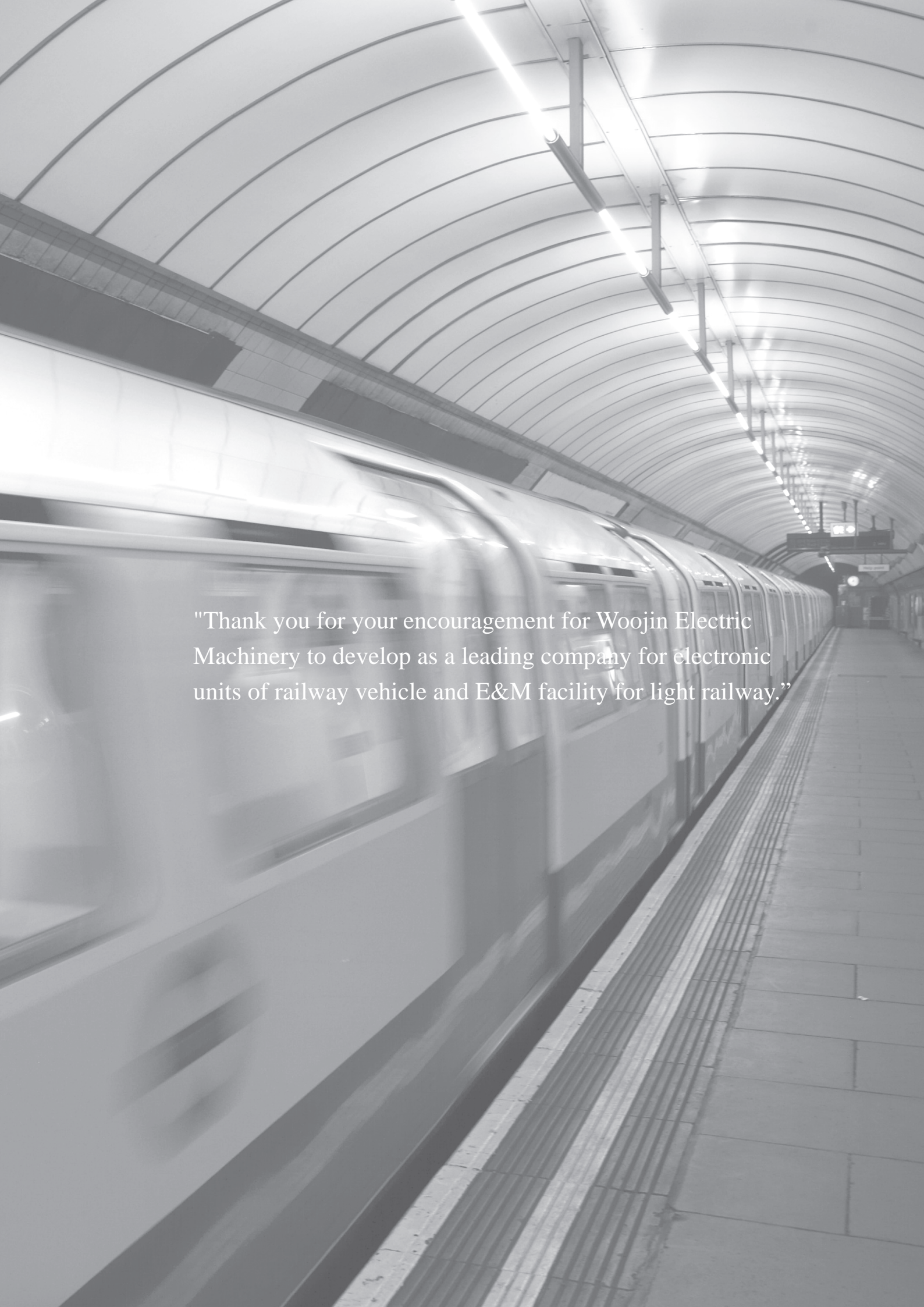


Global leading company for eco-friendly traffic system

# *Technical Innovation*

*for Your Safety and Easy Life*





"Thank you for your encouragement for Woojin Electric Machinery to develop as a leading company for electronic units of railway vehicle and E&M facility for light railway."

## CEO Message



Since its foundation in 1992, Woojin Electric Machinery has contributed to the localization of electronic units of railway vehicle by means of continual R&D and cooperation with multinational companies.

As a leading developer of electronic units of railway vehicle, Woojin Electric Machinery plans to diversify business and to advance into various areas by rapid reaction against domestic and international companies' needs.

We do promise to grow as a company seeking harmonized development with our customers.

Thank you very much

Chairman & CEO **Kim, Young-Chang**

김 영 창

# Company Profile

Since its foundation in 1992, Woojin Electric Machinery has grown as a leading company for electronic units of railway vehicle and E&M facility for light railway and advanced into domestic and global markets.

## Company History

1992. 04. 01	Established Woojin Electric Machinery
1993. 02	Registration for Elevator manufacturing
1993. 04	Technical collaboration for Stainless Door of railway vehicle (with Narita MFG, Ltd. Japan)
1996. 11	Manufacturing for Electric Jumper Coupler of railway vehicle
1996. 12	Obtained the certificate of ISO 9001 issued by BVQI
2006. 01	Established R&D Center of Woojin Electric Machinery
2007. 05	Manufacturing for Rigid Power Rail(3rd rail) of light railway
2007. 12	Manufacturing for Platform Screen Door of Dubai Metro (OEM by Hitachi)
2008. 12	Development for Contactors(CMA/B, TCP, Heating contactor) of Korea High Speed Train
2009. 03	Manufacturing for Platform Screen Door of Busan Metro Line 4
2009. 04	Development for Guide Rail and Switching System of rubber tire AGT
2010. 05	Technical collaboration for Door System of railway vehicle (with Fuji Electronics, Japan)
2010. 06	Obtained Sales License for Radiation Generating Device
2010. 12	Appointed as Promising Export Company
2010. 12	Development for 6 kinds of Rooftop Device of Korea High Speed Train
2011. 04	Technical collaboration for Auto Coupler of railway vehicle (with Yutaka, Japan)
2011. 10	Development for Relay(type B, C) of Korea High Speed Train
2011. 11	USD 1 million export tower award
2012. 12	USD 3 million export tower award



# Organization | R&D

Woojin Electric Machinery is strengthening its core ability through specialization on the railway vehicle industry and investment to human resources and R&D center in order to supply the world-class best products.



To strengthen our technical competitiveness and lead a new paradigm of railway vehicle and next generation transportation system, Woojin Electric Machinery has established R&D center. R&D center researches and develops electrical equipments, test equipments and maintenance facilities for railway vehicles, and E&M facilities for light rail transit.



# WOOJIN Networks

Through our continuous effort, we will respond to the rapidly changing business environment and the demand of customers.



**Woojin Electric Machinery Co., Ltd.**

Manufactures on-board equipments, mechanical components, PSD and power rail

**Woojin Industrial Systems Co., Ltd.**

Manufactures light rail vehicles, on-board equipments for railway vehicle, and test equipments

**Woojin Industrial Technology Co., Ltd.**

Provides maintenance service in EMU depots

**WOOJIN OHM Co., Ltd.**

Industrial resister, distribution board for railway vehicle, indicator production



- Woojin Industrial Systems Seoul Office
- Woojin Industrial Technology Seoul Office
- Woojin electronic Machinery
- Woojin Industrial Systems HQ – 1st factory
- Woojin Industrial System – 2nd factory
- Woojin OHM
- Woojin Industrial Technology
- Woojin Industrial Systems Honam Office



Woojin Electric Machinery Co., Ltd.



Headquarters of Woojin Industrial Systems Co., Ltd. - 1<sup>st</sup> Factory



2nd Factory of Woojin Industrial Systems Co., Ltd.



Ochang Factory of Woojin Industrial Systems Co., Ltd.



Seoul Office of Woojin Industrial Systems Co., Ltd.  
Woojin Industrial Technology Co., Ltd.

## Main Products

01

Driver Controller &amp; CB, Contactor, Relay

02

Rooftop Equipment

03

Electric Jumper Coupler

04

Control Component Box

05

Improvement &amp; Refurbishment

06

Electric Door System

07

Third Rail &amp; PSD

08

Maintenance &amp; Test Equipment

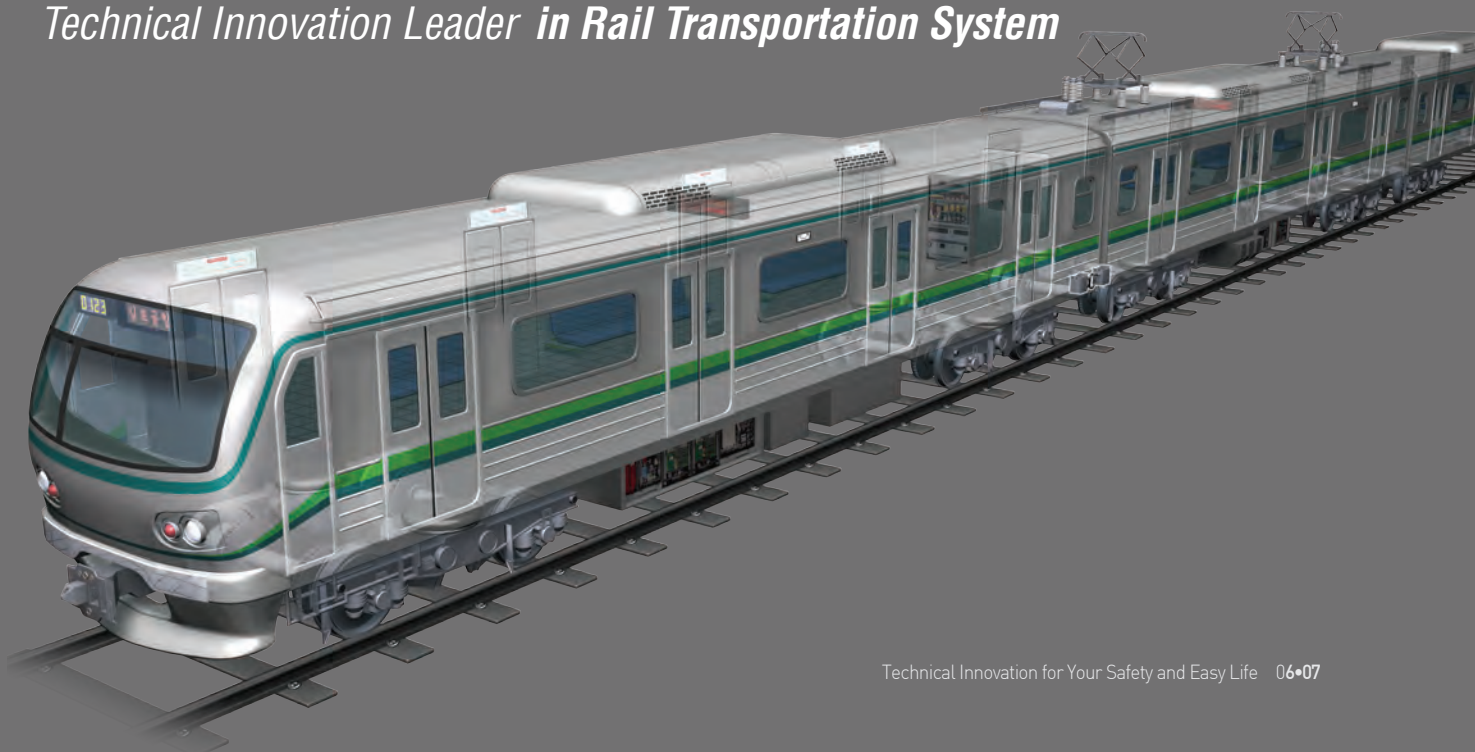
09

Cubicle Manufacturing FacilitiesCubicle

10

Product

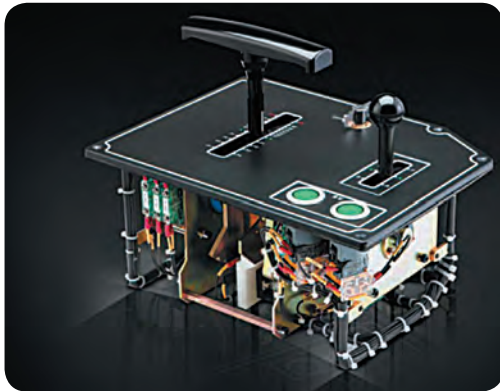
*Technical Innovation Leader in Rail Transportation System*



**Driver Controller & CB, Contactor, Relay**

**Driver Controller**

Driver Controller is an operating device which is installed on the driver console in a cab, and controls powering and braking of vehicle and sub-devices by driver's selection.



**Master Controller(WM 101)**

- **Features**
  - Speed control
  - Powering and braking control
  - Forwarding and reversing control
- **Applied performances**
  - Korea Railroad Corp., Seoul Metro, Seoul Metropolitan Rapid Transit Corp., Daegu Metropolitan Rapid Transit Corp., Daejeon Metropolitan Rapid Transit Corp., Busan Transportation Corp., Incheon Transportation Corp., Gwangju Metropolitan Rapid Transit Corp., USA, China, Philippines, Indonesia, Venezuela, Thailand, Ireland



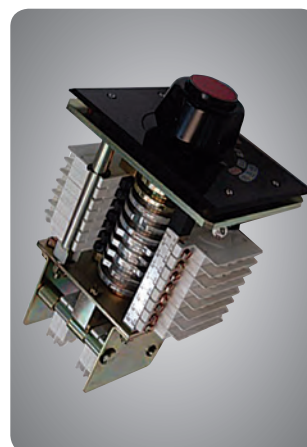
**Master Controller**

- **Features**
  - Speed control
  - Powering and braking control
  - Forwarding and reversing control
- **Applied performances**
  - Korea Railroad Corp.(Honam Express, Next generation high speed train (HEMU))



**Brake Controller**

- **Features**
  - Brake control of electric multiple unit
- **Applied performances**
  - Korea Railroad Corp.
  - Seoul Metro



**Panto Mode Selector Switch**

- **Features**
  - Height control of pantograph, a current collector of high speed train
- **Applied performances**
  - Korea Railroad Corp. (KTX Sancheon, Next generation high speed train)



High Speed Circuit Breaker

Driver Controller & CB, Contactor, Relay

High Speed Circuit Breaker has protection function to prevent damage rearwards by breaking main circuit using self breaking device in case of overcurrent of main circuit in circuit breaker box or power supply for Electric Multiple Unit.



High Speed Circuit Breaker (Electric type)

● Basic specification

Type	WHB-1512
Main circuit voltage	DC1500V
Main circuit current	1200A
Control circuit voltage	DC100V
Overcurrent setting	450A ~ 2000A
Breaking capacity	DC1500V 0.5mH 30kA
Auxiliary contact point	3a3b(basic)

● Applied performances

Korea Railroad Corp., Seoul Metro, Busan Transportation Corp., Daegu Metropolitan Rapid Transit Corp.



High Speed Circuit Breaker (Vacuum type)

● Basic specification

Type	HB-1903H
Main circuit voltage	DC1500V
Main circuit current	900A
Rated pneumatic	5kg/cm <sup>2</sup>
Control circuit voltage	DC100V
Overcurrent setting	1200A ~ 2200A
Breaking capacity	DC1500V 0.5mH 30kA
Auxiliary contact point	3a3b(basic)

● Applied performances

Seoul Metro

**Driver Controller & CB, Contactor, Relay**

*Contactor*

Contactor controls the power of main circuit for railway vehicle and general industry. This is embedded in the main power supply and circuit breaker box and used to prevent damage of devices.



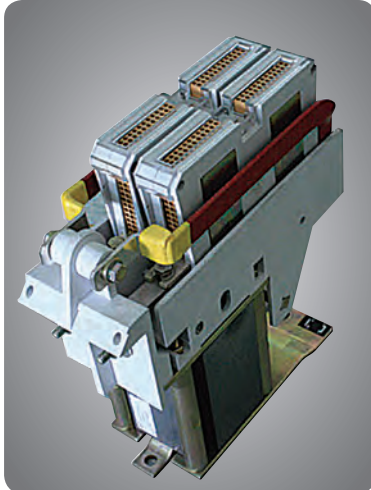
**Electro-magnetic Contactor**

● **Basic specification**

Type	WIS-C-1510
Main circuit voltage	DC1500V
Main circuit current	1000A
Control circuit voltage	DC100V
Main circuit	1 pole
Auxiliary contact point	3a3b(basic)

● **Applied performances**

Korea Railroad Corp., Seoul Metro, Busan Subway Corp., Daegu Metropolitan Rapid Transit Corp., Gwangju Metropolitan Rapid Transit Corp., China, Japan, Hong Kong, India etc



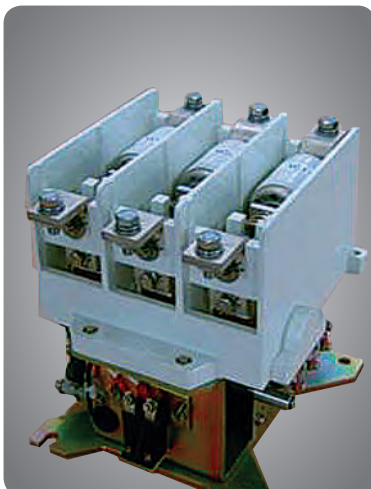
**Electro-magnetic Contactor**

● **Basic specification**

Type	CMA(B)
Main circuit voltage	DC750V
Main circuit current	160A
Control circuit voltage	DC72V
Main circuit	1 pole, 2 pole
Auxiliary contact point	2a2b(basic)

● **Applied performances**

Korea Railroad Corp.(KTX)



**Electro Vacuum Contactor**

● **Basic specification**

Type	CM81-A0
Main circuit voltage	AC 1500V
Main circuit current	300A
Control circuit voltage	DC 100V
Main circuit	3 pole
Auxiliary contact point	2a1b

● **Applied performances**

JR Japan

Contactor

Driver Controller & CB, Contactor, Relay

Contactor controls the power of main circuit for railway vehicle and general industry. This is embedded in the main power supply and circuit breaker box and used to prevent damage of devices.



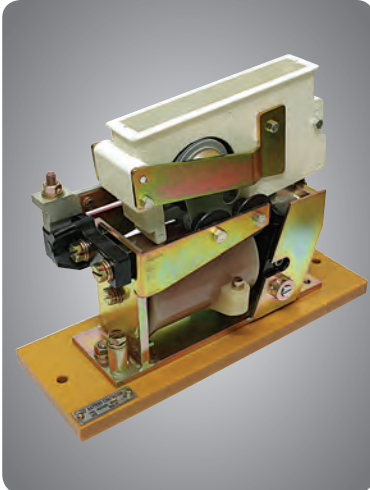
Electro Pneumatic Contactor

● Basic specification

Type	TCP 3437
Main circuit voltage	DC1500V
Main circuit current	1000A
Control circuit voltage	DC72V
Rated pneumatic	9kg/cm <sup>2</sup>
Main circuit	1 pole
Auxiliary contact point	3a3b(basic)

● Applied performances

Korea Railroad Corp.(KTX, electric railway car)



Electro-magnetic Contactor

● Basic specification

Type	46EC43B1
Main circuit voltage	DC 100V
Main circuit current	60A
Control circuit voltage	DC100V
Main circuit	1 pole

● Applied performances

Korea Railroad Corp., Seoul Metro, Seoul Metropolitan Rapid Transit Corp., Busan Transportation Corp., Daegu Metropolitan Rapid Transit Corp., Gwangju Metropolitan Rapid Transit Corp.,



Vacuum Contactor

● Basic specification

Type	CM71-A2 (Ktype)	CM72-A2 (AKtype)	CM77-A7
Main circuit voltage	AC 1500V	AC 1500V	AC 1500V
Main circuit current	800A	800A	1000A
Control circuit voltage	DC100V	DC100V	DC100V
Main circuit	1 pole	1 pole	1 pole
Mechanical life	1 million	1 million	1 million
Auxiliary contact point	3a2b(basic)	3a2b(basic)	3a2b(basic)

● Applied performances

Korea Railroad Corp.

## Driver Controller & CB, Contactor, Relay

### Relay

#### Auxiliary Relay(WRAX-L449)

Relay is embedded on distribution boards for railway vehicle and general industry and controls devices.



- **Basic specification**

Type	WRAX-L449
Main circuit voltage	DC 100V
Main circuit current	3A
Control circuit voltage	DC100V, DC110V, 67V, 50V, 24V
Control circuit	4a4b

- **Applied performances**

Korea Railroad Corp., Seoul Metro, Seoul Metropolitan Rapid Transit Corp., Busan Transportation Corp., Daegu Metropolitan Rapid Transit Corp., Incheon Transportation Corp.,

#### Latch Relay

Relay operated in case of error due to overcurrent, overvoltage

ROV is to protect device from overvoltage

ROC is to protect device from overcurrent



- **Basic specification**

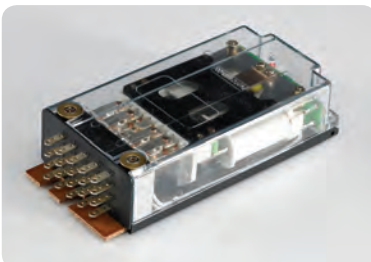
Type	ROV	ROC
Main circuit voltage	DC 1500V	DC 1500V
Set value	2000V	900A
Rated current	3A	3A
Control circuit voltage	DC100V	DC 100V

- **Applied performances**

Korea Railroad Corp., Seoul Metro, Seoul Metropolitan Rapid Transit Corp., Busan Transportation Corp., Daegu Metropolitan Rapid Transit Corp., Incheon Transportation Corp.

#### Control Relay

Used for main control circuit installed at KTX, KTX-Sancheon motor block, auxiliary block and distribution board



- **Basic specification**

Type	B type	C type
Rated control voltage	72VDC (48V~90V)	72VDC (48V~90V)
Min./Max current	12A/20mA(DC24V)	8A/20mA(DC24V)
Contact resistance	Under 10mΩ	Under 10mΩ
Temp./humidity	-40°C ~ 80°C / Under 90%	-40°C ~ 80°C / Under 90%
Contact point	4C Contact point	9 Contact point(6 type)

- **Applied performances**

Korea Railroad Corp.(KTX)

Switch

Rooftop Equipment

AC/DC Changeover Switch

During AC 25KV and DC 1500V operation, Switch supplies the power to vehicle by switching AC/DC.



● Basic specification

Type	KSH 1400	FSH 17A
Rated voltage	AC 25000V / DC1500V	AC 23KV / DC1500V
Main circuit current	100A / 800A	AC 600A / DC 3000A
Rated short-time current	AC 4,400V 2 sec.	-
	DC 1,300A 2 min.	-
Control circuit voltage	DC100V	DC100V
Rated pneumatic	5kg/cm <sup>2</sup>	6.3kg/cm <sup>2</sup>
Auxiliary contact point	3a3b(basic)	2a2b

● Applied performances

Korea Railroad Corp., Seoul Metro, JR Japan

25KVA Isolating Switch

Isolating Switch is installed on the roof of motor car, and disconnects and controls 25KV of catenary voltage.



● Basic specification

Type	KSH 1400
Rated voltage	AC 25000V, 60Hz
Main circuit current	300A
Control circuit voltage	DC 72V
Rated pneumatic	9kg/cm <sup>2</sup>
Auxiliary contact point	3a3b(basic)

● Applied performances

Korea Railroad Corp., Seoul Metro, JR Japan

## Rooftop Equipment

### Transformer

#### 25KV/100V Transformer

High pressure transformer by reducing 25KV voltage into 100V



● Basic specification

Type	KSH 1400
Rated input voltage	AC 25000V
Output voltage	100V
Rated capacity	40VA
Voltage resistance	Max.170KV 50uS
Structure	CERAMIC insulator type

● Applied performances

Korea Railroad Corp.(KTX Sancheon)

#### 100V/100V Transformer

Transformer decompresses 25KV power of catenary to 100V and disconnects circuits between high voltage and control part and supplies the safe power by insulating 100V power.



● Basic specification

Type	KSH 1400
Rated input voltage	AC 100V
Output voltage	100V, 60Hz
Rated capacity	10VA
Structure	EPOXY resin molding

● Applied performances

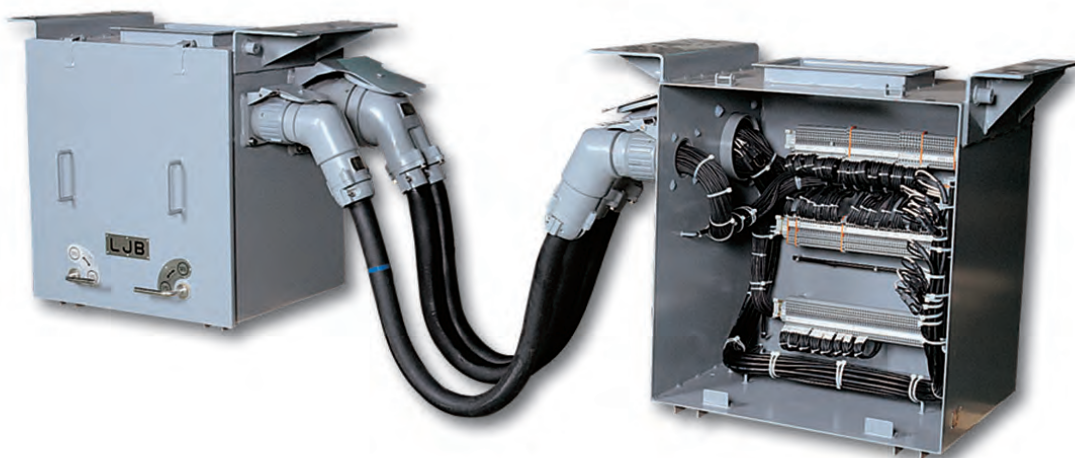
Korea Railroad Corp.(KTX Sancheon)

*Jumper Coupler & Junction Box*

**Electric Jumper Coupler**

**Jumper Coupler & Junction Box**

Jumper Coupler connects and disconnects low voltage and high voltage between cars. This is composed of plug and receptacle and the receptacle is mounted on the car body with connection box.



● **Basic specification**

	90P		66P	12P	5P(high pressure)	5P(low pressure)
Maximum current	41A	73A	41A			
Rated current	23A	46A	23A	20A	160A	200A
Rated voltage	100V	100V	100V	100V	AC 1550V	AC 440V DC 100V
Voltage resistance	AC1200V/1 min	AC1200V/1 min	AC1200V/1 min	AC1200V/1 min	AC5400V/1 min	AC1200V/1 min
Insulation resistance	20MΩ	20MΩ	20MΩ	20MΩ	50MΩ	20MΩ

● **Applied performances**

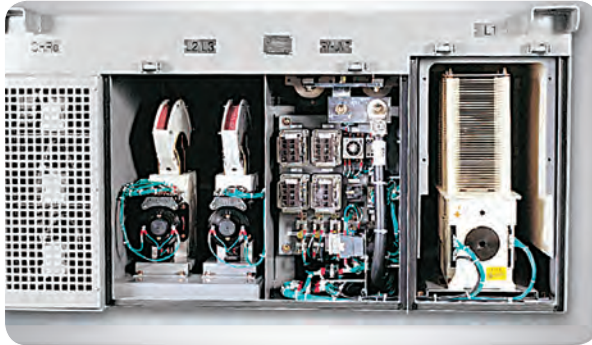
Korea Railroad Corp., Seoul Metro, Seoul Metropolitan Rapid Transit Corp., Busan Transportation Corp., Incheon Transportation Corp., Daegu Metropolitan Rapid Transit Corp., Daejeon Metropolitan Rapid Transit Corp.,

## Control component box

### Control Component Box

#### Line Breaker Box

High speed breaker, line breaker, charging resistor trip unit and relay are mounted which prevents damage of device by overcurrent. High speed breaker and line breaker are electronic device to input and open pole by electronic force.



#### ● Basic specification

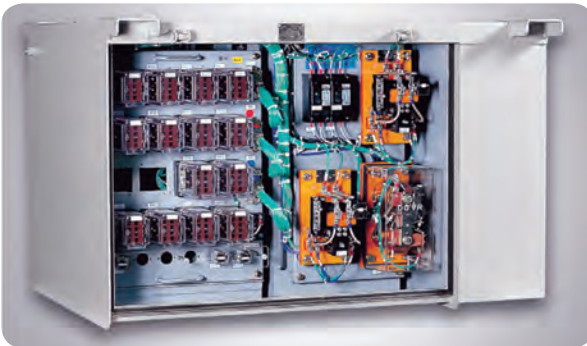
Main circuit voltage	DC1500V
Current	DC 1200A(Main circuit)
	DC 100A(Control circuit)
Control circuit voltage	DC 100V(+10%, -30%)
Overcurrent set value	1600A

#### ● Applied performances

Korea Railroad Corp. AD/DC electric multiple unit

#### Auxiliary Control Box

Auxiliary Control Box is embedded in circuit breaker, AC over-current relay, DC voltage relay, high voltage fuse and diode, etc. and controls vehicle and protects devices.



#### ● Basic specification

Main circuit voltage	DC1500V
Current	DC 600A(Main circuit)
	DC 120A, AC 123A(Control circuit)
Overcurrent set value	DC 100V(+10%, -30%)

#### ● Applied performances

Korea Railroad Corp. AD/DC electric multiple unit

#### Resistor Box

Resistor(OVRe) releases overvoltage in link with VOT in case of VVVF INVERTER overvoltage and CHGRe protects rapid charge of capacitor by restricting current in case of charging.



#### ● Basic specification

Main circuit voltage	DC1500V
Rated resistance value	6.48 Ω±5% (OVRe)
	6.48 Ω±5% (CHGRe)
Overvoltage Set value	DC 2000V (4 consecutive inspection)

#### ● Applied performances

Daegu Metropolitan Rapid Transit Corp monorail



*Improvement & Refurbishment*

**Improvement & Refurbishment**

Improvement & Refurbishment aims at increasing the usage life of vehicle and securing management convenience for driver. We change seats, lights, HVAC(Heating, Venting and Air Conditioning System) and ancillary room into modernized facilities and optimize vehicle operating by supplementing operability of variable controllers and interior/exterior surveillance system according to one man drive.



**Improvement of control of driving room**

- **Purpose of improvement**  
Convenience in operation and driving by 1 driver
- **Scope of improvement**  
Improvement of door control switch, installation of platform monitor, rearrangement of controller for one man drive, digitalization of gauges and change to LED lamps.
- **Applied performances**  
Korea Railroad Corp. Central line, Bundang line



**Diesel Multiple Unit improvement**

- **Purpose of improvement**  
Improve urban transit type CDC passenger room facility to make Mugunghwa type diesel train (RDC)
- **Scope of improvement**  
Facility in passenger room (chair, entrance door)  
Amenities (reading light, curtain, table for laptop etc.)  
Mini café, toilet improvement
- **Applied performances**  
Korea Railroad Corp.

## Electric door system

### Electric Door System

Electric door system applies FCPM motor which is open/close in rack/pinion method. It is for safe alight and takeoff for passengers



#### Electric Door System

##### ● Features

- High efficiency and light weight by FCPM motor
- Improve vibration resistance and control capacity by sealed type high resolution capacity encoder
- Easy control by all-in-one structure
- Improve reliability by simplifying locking structure
- High performance by leading edge control device

##### ● Specification

Item	Specification
Door system	Electric door system
Door running method	Slide pocket type
Door rated voltage	DC100V (70V~110V)
Opening time	3.0 ± 0.5 sec (adjustable)
Closing time	3.5 ± 0.5 sec (adjustable)
Control device	Door control unit (DCU)



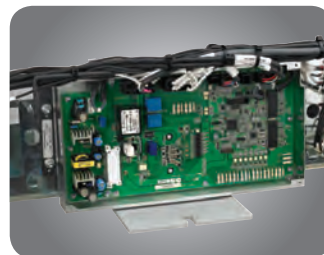
Door panel

##### ● Applied performances

Daegu Metropolitan Rapid Transit Line 3 monorail



Door engine



DCU



FCPM MOTOR

Platform Screen Door

Facilities for track & station

PSD (Platform Screen Door) is installed on the platform to block platform and railway for safety of passengers. It is open/close in the interlocking with entrance door in case of alight and takeoff. At other times it is kept closed



Platform Screen Door

● Specification

Item	Specification
Opening	Left/right slide
Width of opening	1800mm (center open)
Operation method	Motor (motor+ belt drive)
Control method	DC motor control
Open/close time	3 sec. ±0.5 sec.
Power	AC200V±10%, AC100V±10%
Control power	24V±5%, 12V±5%, 5V±5%
Min. operation power	Less than 10Kgf (in case of black out)



● Function

1. Door open/close
2. Door reopen/re-close
3. Mechanical lock by means of electronic lock (solenoid)
4. Barrier sensor (detection device)
5. Correction of origin point

[ PSD Unit ]

- Operation unit
- Operation door
- Fixed door
- Emergency door

[ PSD System ]

- PSD UNIT
- General control unit
- Elevator control unit
- PSD monitoring unit
- Driver operation unit



● Applied performances

Busan Metropolitan Rapid Transit line 3, Dubai Monorail

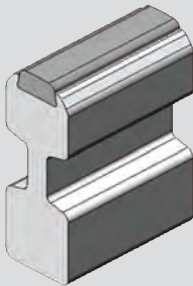
## Facilities for track & station

### Third Rail

Power supply system unit to supply DC 750V or DC 1500 V to vehicles by means of side contact method of vehicle current collector shoe and Conductor rail



#### Conductor rail



- **Function**  
Aluminum/Stainless (AL/SUS) conductor rail for power supply to train [Side contact between current collector shoe and conductor rail]
- **Applied performances**  
Busan Metropolitan Rapid Transit line 4  
USA Dallas, Dubai Monorail

#### ● Specification

Item	Specification
Door system	H:75mm,D:25mm
Door system	AL (1,365mm <sup>2</sup> ) SUS (113mm <sup>2</sup> )
Door running method	4.7Kg/m
Door rated voltage	1,700A
Opening time	0.0248Ω/Km
Closing time	12m to 15m
Control device	Side contact method

#### Conductor rail material



Expansion Joint

End Approach

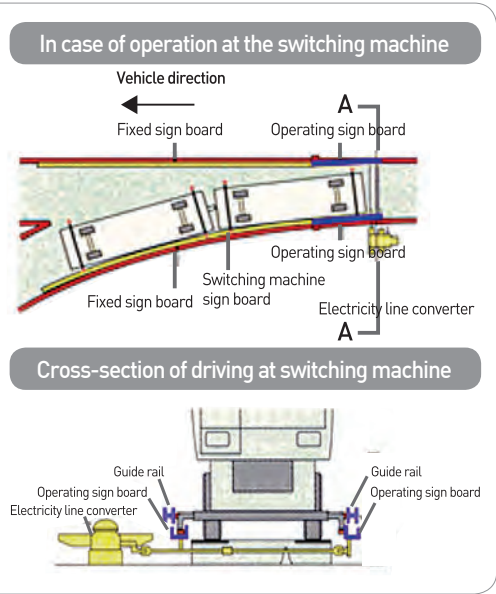
Insulation Section

Insulator

Guide Rail

Third Rail & PSD

H-beam rail system installed side wall of orbit to induce AGT rail train to the exclusive guide rail



Horizontal Switching Machine

- **Operating principle**  
It enables smooth switching guide of vehicle by Operating/Fixing sign board and driving wheel. Horizontal operation sign board is interconnected by driveshaft and performs by interworking movement from side to side.
- **Applied performances**  
Busan Metropolitan Rapid Transit Line 4

- **Component**
  - ① Operation sign board
  - ② Fixing sign board
  - ③ Stand A'ssy for Movable rail
  - ④ Cross steel surface

Conductor rail material



Driving lane color    Guide rail mounting plate    Inspection area guide rail    Approach guide rail    Joint plate

## Maintenance & Test Equipment

### Test Equipment

Woojin Electric Machinery manufactures and provides test equipments for vehicle and electronic units at the vehicle base.



#### Ultrasonic Flaw Detection System

- **Test object** : Axle
- **Test item** : Measure internal crack and error of axle
- **Test method** : Detect axle damage by ultrasonic wave by means of vertical, local and dead angle detector
- **Test type** : Waveform, Phased array
- **Device** : Detecting device, grinding device, control unit



#### Test Equipment for VVVF Inverter

- **Test object** : VVVF Inverter, GTO Converter/ Inverter, Its Control Unit
- **Test item** : Power unit, sequence, protection action Gate Amp features, optical output test
- **Measurement function** : Indication, voltage change, self-diagnosis, determination
- **Device** : Data processing device, measuring device, signal generating device, delivery device, test cable



#### Test Equipment for SIV

- **Test object** : Static Inverter Control Unit
- **Test item** : Power unit, sequence, protection action Gate Drive Unit test
- **Measurement function** : Indication, voltage change, self-diagnosis, determination
- **Device** : Data processing device, measuring device, signal generating device, test cable

## Test Equipment

## Maintenance &amp; Test Equipment

Woojin Electric Machinery manufactures and provides test equipments for vehicle and electronic units at the vehicle base.



## Test Equipment for Coil Spring

- **Test object** : Coil spring for Electric Multiple Unit
- **Test item** : Spring height, loading test
- **Measurement function** : Power indication, Process check, data measurement and analysis, indication, self diagnosis, determination
- **Device** : control unit, power supply unit, detector, operating device, control unit (mounting type)



## Test Equipment for CCU

- **Test object** : Control Unit(CCU) for Electric Locomotive
- **Test item** : Operation sequence, protection, input voltage change  
Digital / analogue input/output  
Communication (MVB, WTB)
- **Measurement function** : Status indication, data collection and output, MVB communication, automatic determination
- **Device** : Power supply, data processing, data measurement, equivalent signal generating device  
P L C , oscilloscope, device mounting plate



## Test Equipment for ATP

- **Test object** : ATP Unit for Electric Locomotive
- **Test item** : real time data receiving / monitoring / stopping / control power, input/output test / analogue output test, beacon antenna test, front-rear ATC sending, DMI test
- **Measurement function** : data monitoring / collection / storage / analysis  
Automatic power control, mobile test
- **Device** : Main control unit, test control unit, mobile test unit, communication control device, signal generating device, equivalent signal generating device

## Cubicle Manufacturing Facilities

### Manufacturing Facility

Woojin Electric Machinery manufactures and supplies cubicle product of vehicle and electronic units.



#### Laser cutting machine

##### ● Specification

Name	Laser
Size	ML3015 HVP-40CF
Movement method	Hybrid
Location	±0.01/500mm
Movement amount	3050*1525
Processing speed	50m/min(30m/min)
Propelling capacity	4kw



#### Press Brake

##### ● Specification

Name	Press Brake	
Size	HDS 1303	HPB-20040
Pressing capacitykN(tonf)	1,274(130)	200t
Pressing length(mm)	3220	4000
Stroke length(mm)	200	200
Descending /pressing/as- cending speed (mm/s)	200/20/200	
Back gauge movement scope(mm)	700	400



Cubicle Product

Cubicle Product

Woojin Electric Machinery manufactures and supplies cubicle product of vehicle and electronic units.

Box for Converter/Inverter



● Features

- Control of reverse and brake of electric multiple unit
- Control of forward and backward of electric multiple unit
- Transfer to ATO mode

● Specification

Type(mm)	3360*2510*760
Weight(kg)	850
Material	SPCC/SUS304/A5052
Applied	Electric multiple unit

Box for Static Inverter



● Function

- Control of reverse and brake of electric multiple unit

● Specification

Type(mm)	3000*1000*660
Weight(kg)	450
Material	SPCC/SUS304/A5052
Applied	Electric multiple unit

## Cubicle Product

## Cubicle Product

Woojin Electric Machinery manufactures and supplies cubicle product of vehicle and electronic units.

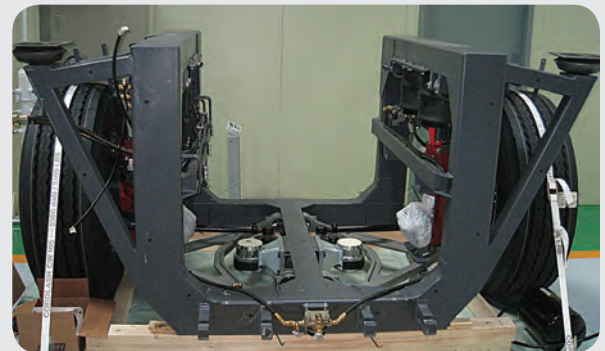
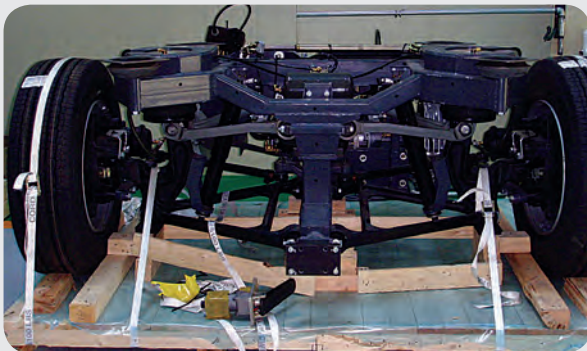


### Bogie Frame for K-AGT

- **Features**  
Support vehicle load  
Equipped with driving and control function

- **Specification**

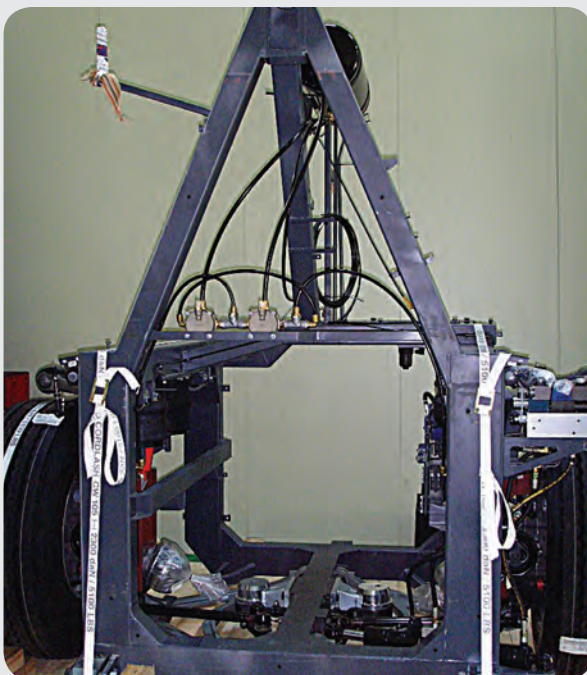
Structure	Guide frame / circulating frame
Material	SM490B/STKR400/SS400
Applied	Light rail transit



### Bogie Frame for Bimodal

- **Specification**

Structure	1 axle/2 axle/3 axle frame
Weight (kg)	130/335/400
Material	SM490B/STKR400/SS400
Applied	Low floor bending bus



# Vision



The safe and comfortable subway, The reliable locomotives as a partner of pleasant travel,  
And even light rail vehicle to bring us right in front of our house...

All these are possible with WOOJIN's products.

A company that thinks of passenger's safety and comfort –

A company that is reliable and faithful to our clients –

Woojin Electric Machinery WOOJIN makes a pleasant world of Next Generation Transportation



Woojin Electric Machinery is eco-friendly company willing to supply the best products for safe and comfortable railway vehicle as well as next generation transportation system.

We are doing our finest to provide safe and comfortable railway transportation system, considering that every single person using the railway transportation as our best client. Woojin Electric Machinery, the most enterprising company toward safety and comfort, will always keep your happiness with you.

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