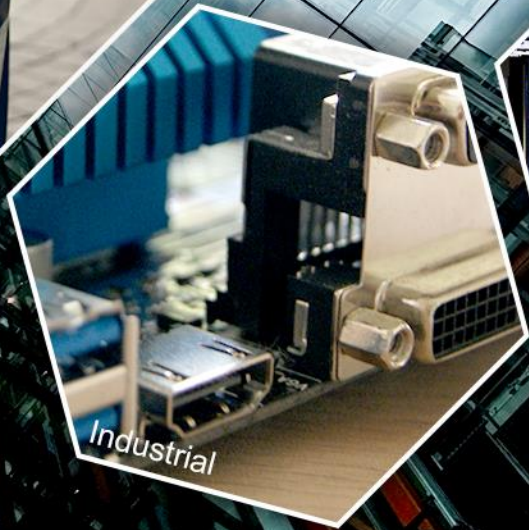




Train



Electric Vehicle



Industrial



Big Data Center

# Qualifications 质量认证

- AS9100 (for aerospace quality system)

## 航空体系认证

- IRIS (for railway quality system)

## 铁路体系认证

- ISO13485 (for medical quality system)

## 医疗体系认证

- TS16949 (for automobile quality system)

## 汽车体系认证

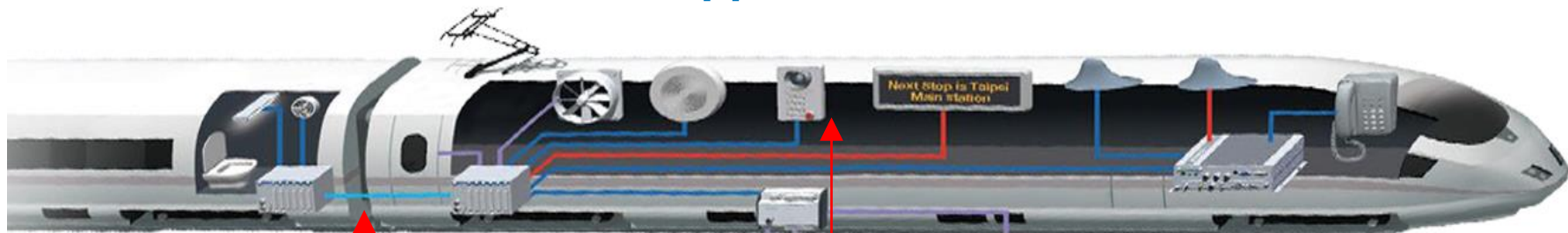
- ISO14001



# RMT Products Presentation

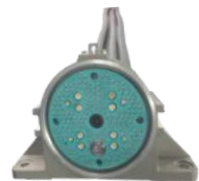


# Applications



Inter-car Jumper

车厢跨接



- JR
- ASGTC
- HVGTC
- ASRC
- C146



Bogie, Breaking, Sanding, Traction, speed, temperature sensor  
转向架设备, 制动系统, 撒沙, 牵引, 速度, 温度

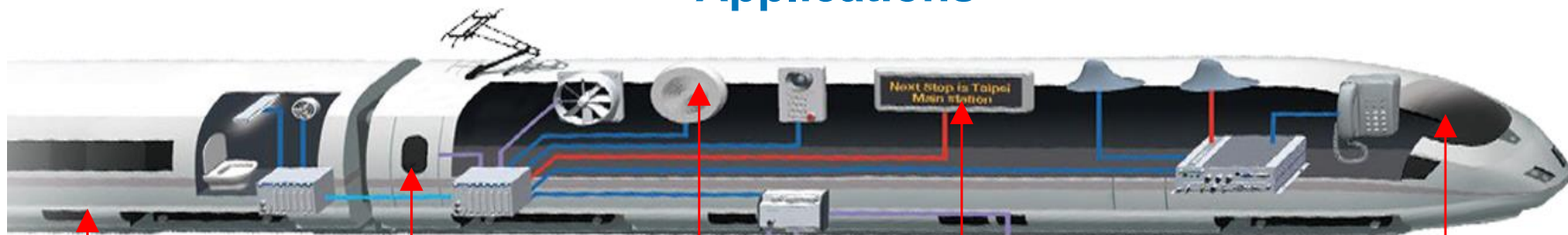
Lighting 照明



- ASGTC
- ASRC
- ASVG
- C146
- EMP



# Applications



Grounding  
Power



车门Door



空调Air  
Conditioner



显示设备:显示  
屏, 监控等

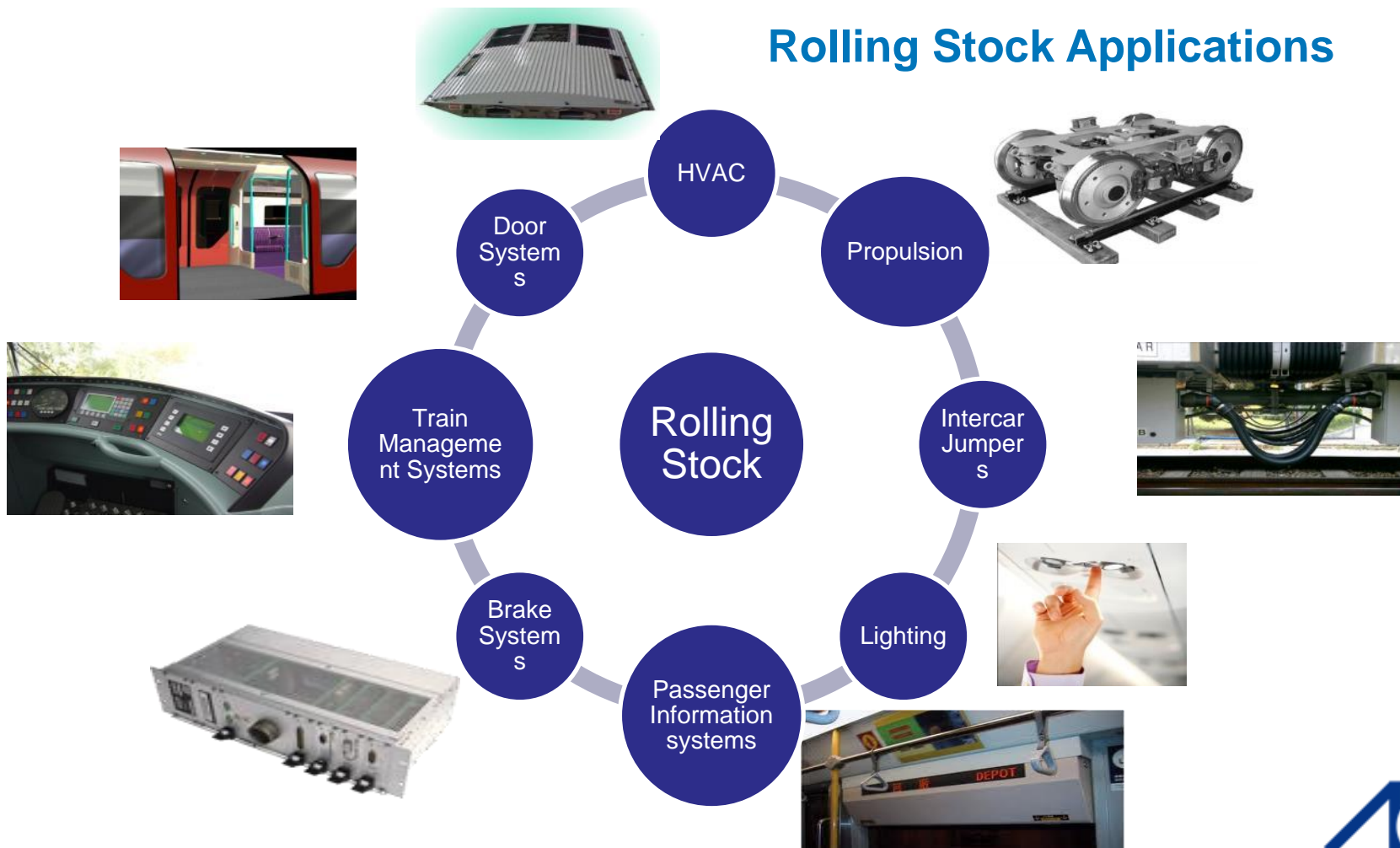


司机室控制信号Control  
& Signal in Driver Cab



- ASGTC/ASRC/ASVG/C146/D-sub/ASTP/ASPRC/ASGP/TB

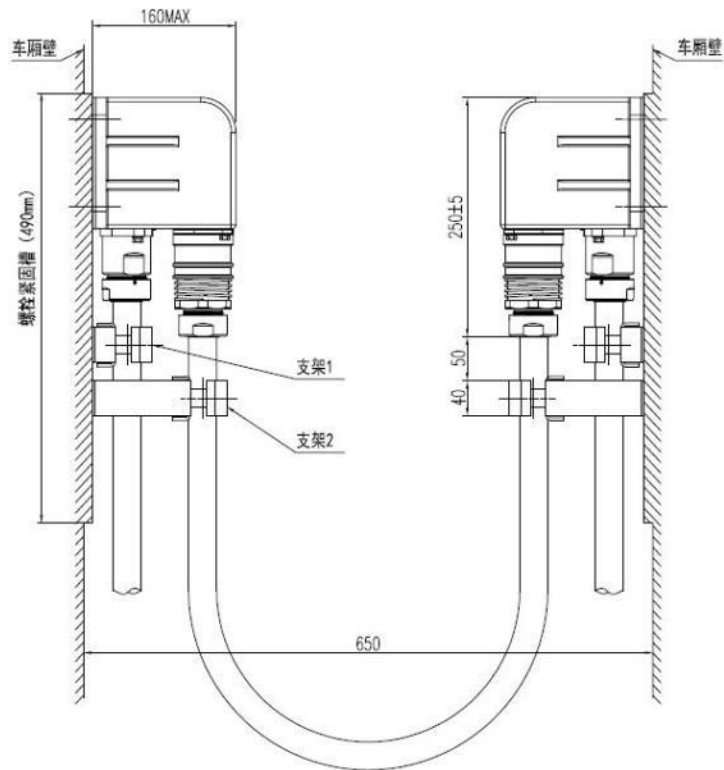
# Rolling Stock Applications



# Inter-vehicle Jumpers \_\_JR



# Inter-vehicle Jumpers \_\_Std EMU标准化动车, 定制产品





## ASGTC Series 圆形卡口连接器



- Ruggedized reverse bayonet circular connector series for Rail/Mass Transit and other harsh environments
- Alu. alloy shell and elastomer sealing
- Thermal-plastic insert
- Crimping contacts with gold or silver plating
- Water proof: IP67
- Operating temperature: -40° C to 125° C
- Flammability BS6853/UL94-V0/[EN45545](#)
- Over 1000 mating cycles
- Special safety locking system, durable for high vibration and shocking condition
- Competitor JAE's GTC series.



# ASGTC — Reference Application



Customer: CRRC SIFANG

Market: RMT

Application: For Sensor, signal control of High Speed Train

Product: ASGTC series



# ASGTC-Quadrax Ethernet Connector 网络数据连接器

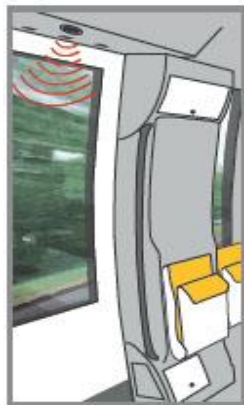
- ASGTC shell with IP67 waterproof and self-locking system
- Individual 360° shielding circular modules with 4 contacts
- Max. 6 circular modules can be installed
- CAT5E, CAT6 & CAT7, max. data transfer speed 10Gpbs

## Application:

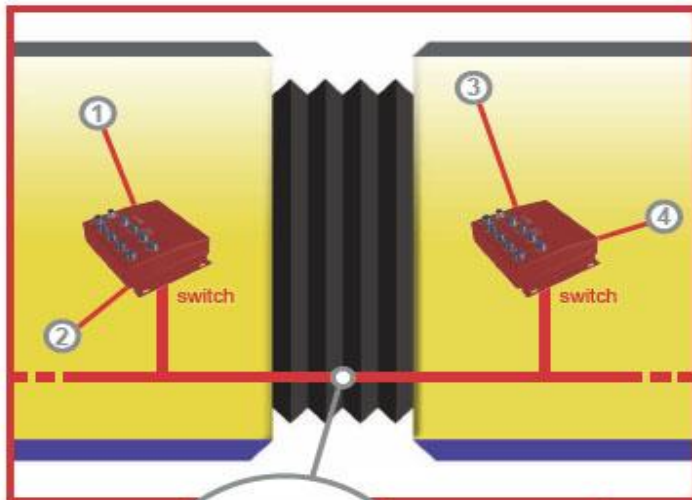
- WTB (Wire Train Bus) 绞线式列车总线
- MVB (Multifunction Vehicle Bus) 多功能车辆总线
- Ethernet 以太网
- 4 x 1.5 signal control (485等信号)
- PIS system 广播系统
- Sensor 传感器



# ASGTC Quadrax in Railway High Speed Solution



① Real-time information



③ Safety



④ Reliability



② Comfort

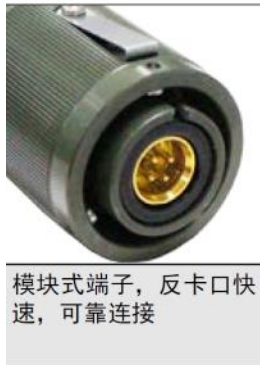
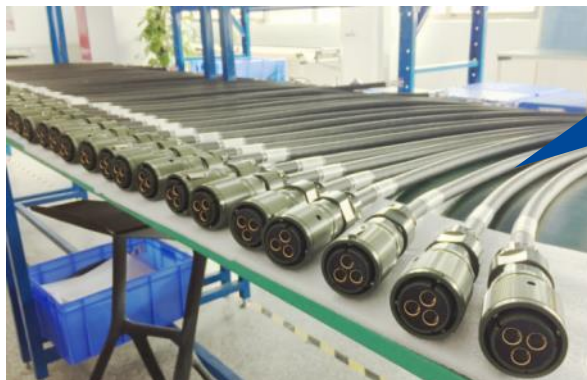


# PRODUCTS AND APPLICATIONS

For Bogie  
Temperature  
Monitoring



Do cable  
assembly by  
ourselves



模块式端子，反卡口快速，可靠连接



多键位，防误插功能



可连接 MVB,WTB, 以太网等多种类型的信号传输



镀金模块，360度的屏蔽，信号稳定传输

# HVGTC Power Bayonet Connector 高压电源连接器

- Alu. shell, plastic insert
- 3 & 4 ways
- 25 mm<sup>2</sup> to 95 mm<sup>2</sup> cable
- Up to 350A with 14mm Radsok
- High voltage up to 3000V
- Crimp contacts with silver plating
- Receptacle with selfcap
- IP67 waterproof

## Applications

- AC Power supply with high voltage for Metro & EMU applications
- Inter vehicle jumpers

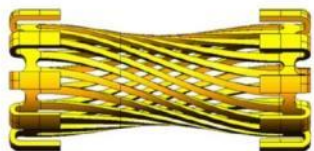


# HVGTC Single Contact Connector 高压电源连接器

- ASGTC series shell, thermal plastic insert
- Crimping contacts, **RADSOK** technology
- Up to 500A with 16mm Radsok  
700A with 18mm Radsok  
**1000A** with 23mm Radsok

(for Indian Project PZ 印度诺伊达地铁)

- Rated voltage 3000VAC
- Cable size can be crimped:  
25mm<sup>2</sup>, 35 mm<sup>2</sup>, 50mm<sup>2</sup>, 70mm<sup>2</sup>, 95mm<sup>2</sup>, 100 mm<sup>2</sup>, 120mm<sup>2</sup>, 150mm<sup>2</sup>, 185mm<sup>2</sup>, 240mm<sup>2</sup>,  
**360mm<sup>2</sup>**



High Voltage  
Single Pin  
Connector for  
500km/h EMU



# HVGTC Single Contact Connector 高压电源连接器

大同新八轴机车项目  
Locomotive for traction motor application  
HVGTC3201

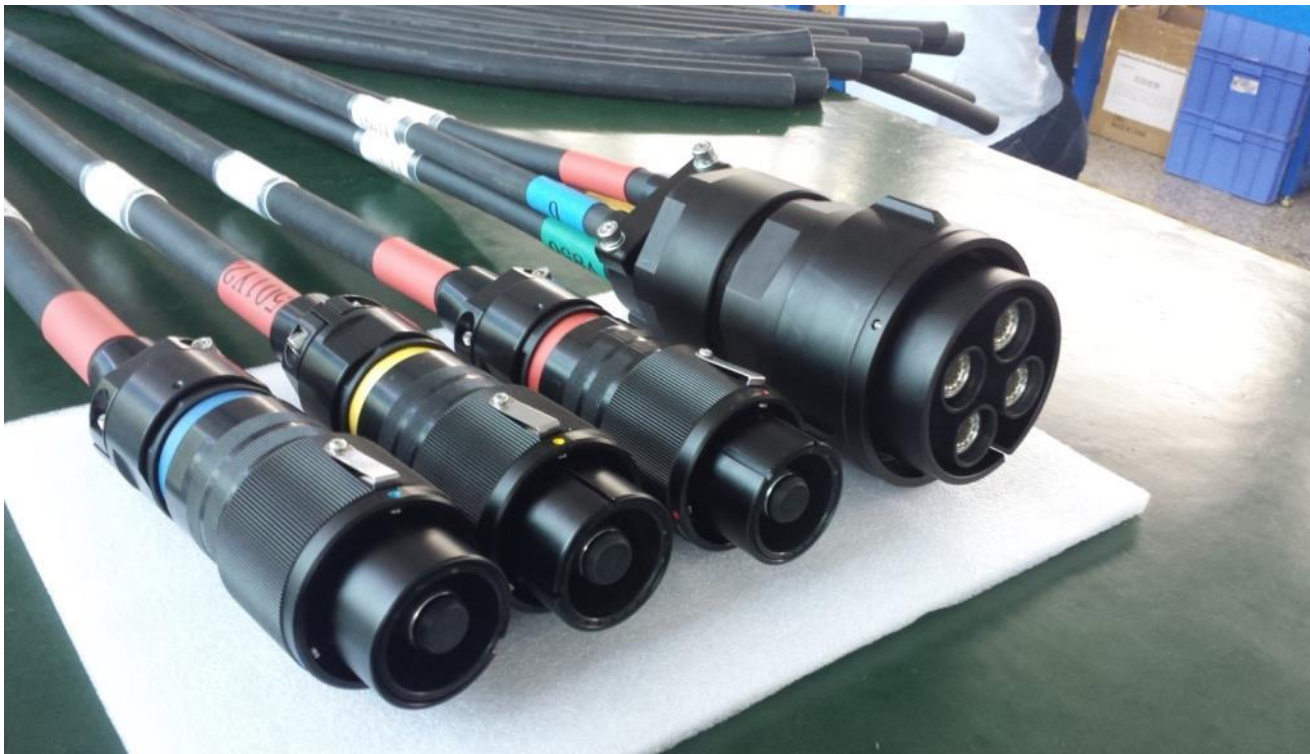
典型的  
应用





# HVGTC Power Connector 高压电源连接器

阿根廷地铁项目 /Argentina Metro Roca Line



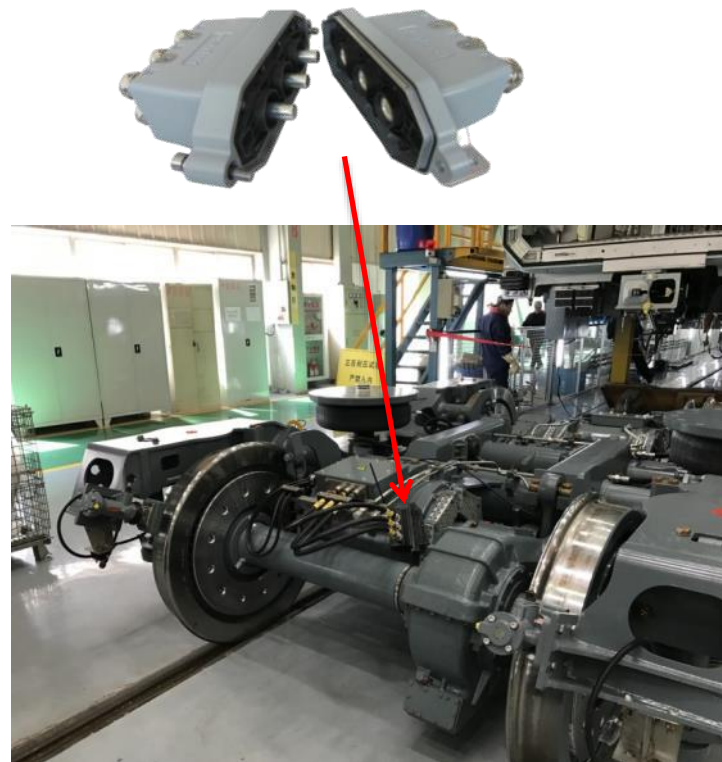
# HVGT Power Connector 高压电源连接器

阿根廷地铁项目 /Argentina Metro



# EMP Power for Motor 电机连接器

- For Traction Motor Power supply connection
- Alu. die cast shell at IP67
- Operating temperature:  $-40^{\circ}\text{C}$  to  $125^{\circ}\text{C}$
- Vibration & shock: Category 3 (EN61373)
- UL94-V0 fire flame resistance
- 18mm, 16mm or 10mm Radsok crimping contacts
- 1000 times mating cycle
- Max. 700A(18mm Radsok) as rated voltage 3000V AC
- Cables: 25 -240mm<sup>2</sup>
- Available EMP3-6, EMP3-3R10, EMP3-3R14  
EMP3-3R18, EMP4-4R10



## EMP Power for Motor 电机连接器



### 浦镇地铁用电机连接器

For many metros(Shanghai, Wuxi, Nanjing, Hangzhou...)  
made by CSR Puzhen rolling stock

For South Africa Locomotive which  
is manufacturing by CSR ZhuZHou  
locomotive company  
南非机车电机连接器



# EMP Power for Motor 电机连接器

For Beijing Metro line #14, #16,  
SH5, HK Metro of SIFANG



For CPC, Bombardier Traction  
Motor JV in China, using for  
Tianjin metro line #5 and  
Guangzhou Metro

# EMP Power for Motor -- NEW



# ASGL Series (ASGL2827)多芯信号连接器

- Intermatable with JAE's JL06 connector
- Alu shell, shell size 28
- Thermo-plastic insert
- 27 #16 AWG crimping contacts
- Water proof: IP67
- Bayonet locking system
- 5 insert orientation for blind mating
- Scoop proof

## Application:

- Sensor for speedometer, bogie connection
- Control system for E-cabinet

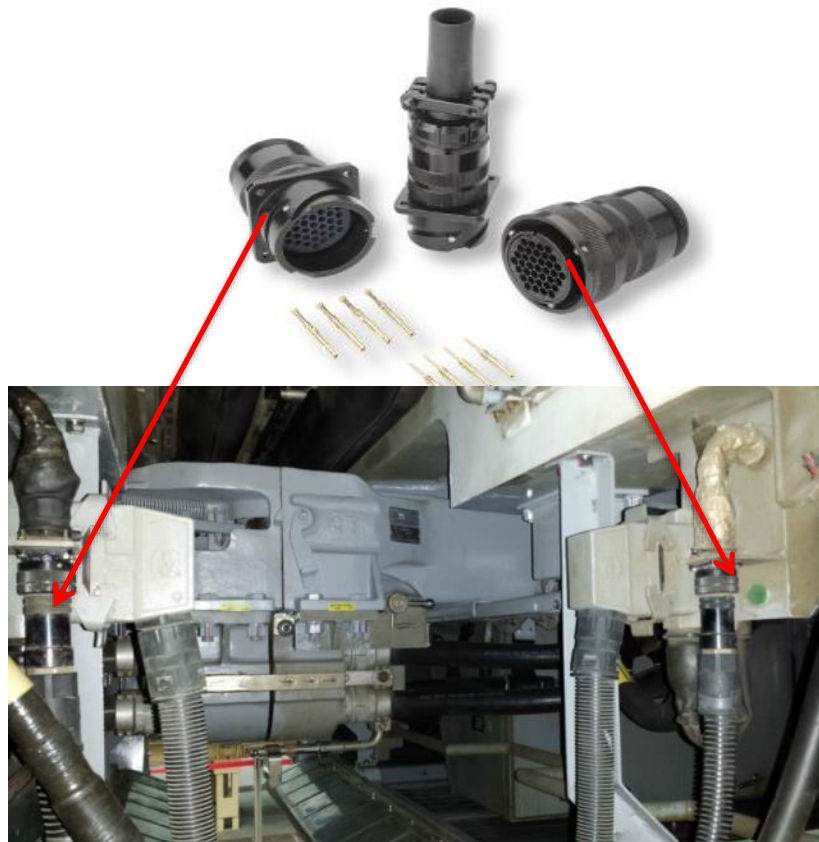


# ASVG Series- Bayonet Circular connector

- Intermatable with all **VG95234: MS5015**  
(通常说的航空插头)
- Alu. alloy shell and elastomer sealing
- **Thermal-plastic insert**
- Crimping contacts with gold or silver plating
- Water proof: IP67
- Operating temperature: -40° C to 125° C
- More than 43 insert arrangement
- Conforming with the French Railway standard NFF 61-030

## Application:

- Sensor for speedometer, bogie connection  
各种传感器的连接
- Control & Signal system for E-cabinet 控制  
信号应用





# ASGTC — Reference Application



Customer: CRRC SIFANG & ChangChun

Market: RMT — EMU & Metro

Application: For Speed Sensor, Sanding System of High Speed Train

Product: ASVG series



# ASCB Series- Bayonet Circular Connector

## ➤ Introduction:

- Miniature cylindrical bayonet coupling connector
- Coding comply with **MIL-C-26482**
- Machined Alu. alloy shell and elastomer sealing
- 3 point bayonet coupling and 5key mating
- **Thermal plastic insert, EN45545 HL3 certification**
- Crimping Contacts with gold plating
- Water proof : IP67
- Operating temperature:  $-50^{\circ}\text{C} \sim +125^{\circ}\text{C}$
- Over 500 mating cycles

## ➤ Application

- Signal control
- Sensor
- Industrial Controls



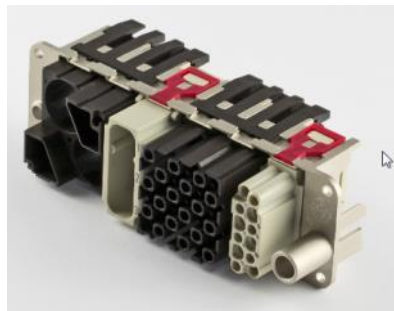
# ASGP Ground Power 地面电源连接器

- Ground power supply when train is being maintained
- Alu. die cast shell at IP67
- Operating temperature:  $-50^{\circ}\text{C}$  to  $125^{\circ}\text{C}$
- Vibration & shock: Category3 (EN61373)
- Rated voltage: 500V r.m.s
- Rated current: 500A max
- Durability: 1500 cycles
- 4x16mm Radsok for power & 6x3.6mm spring wire sockets for signal
- $150\text{mm}^2$  &  $2\text{mm}^2$  cables or as customer's request



# Heavy|Mate HV 矩形重载连接器

- Up to 280 poles
- Voltage up to 1000V
- High current
- Signal transmission
- IP65 to IP68
- Robust
- Vibration proof
- Good Value
- VDE, UL, CSA approvals



# Heavy|Mate HV 重载矩形高压连接器

## 机械性能/Mechanical features

- 机械寿命Mating cycles :  $\geq 1000$  次

## 电气性能/Electrical features

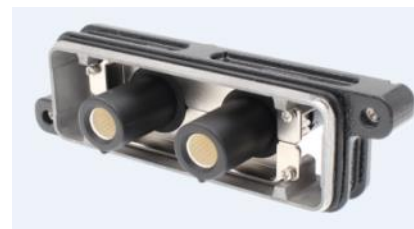
- 额定电压 Rated Current : 4000V AC
- 额定电流 Rated Current : 700A MAX, 25~240mm<sup>2</sup>
- 绝缘阻抗 Insulation resistance :  $\geq 5000M\Omega$  (500V DC)
- 耐压 voltage withstanding : 8000V AC(rms), 60秒, 漏电流  $\leq 2mA$
- 接触电阻 contact resistance: 小于0.15 miliohms

## 环境性能/Environment features

- 工作温度 Temperature :  $-55^{\circ}C \sim +125^{\circ}C$
- 绝缘体阻燃等级 Fire retardant : UL94-V0/EN45545
- 盐雾 Salt spray: 500H

## 材料/Material

- 外壳 Shell : 铝合金 EPOXY POWDER PAINTING 插针 Contact : 铜合金, 表面镀银  
copper alloy, with silver plated



# ASRC M Series Ethernet Connector 矩形网络数据连接器

- Rectangular shell at IP68
- Individual Quadrax modules and contacts
- 360° shielding for every module

## Application:

- WTB
- MVB
- Ethernet(100M, 10Gpbs)
- 4 x 1.5 signal control
- PIS system

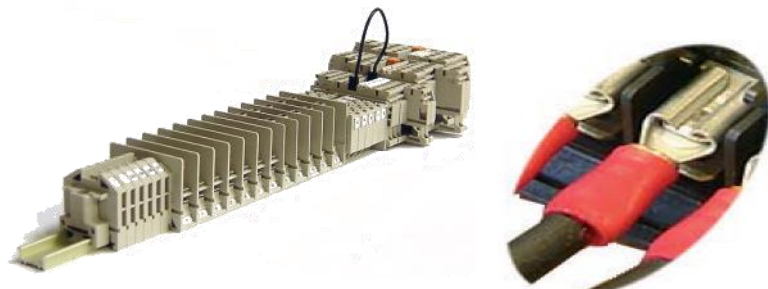


# Terminal Block 法式端子排

- Fast on Type
- Stud Type
- Screw Clamp Type
- Cage spring Type
- Temperature range:  $-60^{\circ}\text{C}$  to  $135^{\circ}\text{C}$ .
- Wire cross section from  $10\text{mm}^2$  to  $100\text{mm}^2$  from 40 to 320A rated current.

## Application:

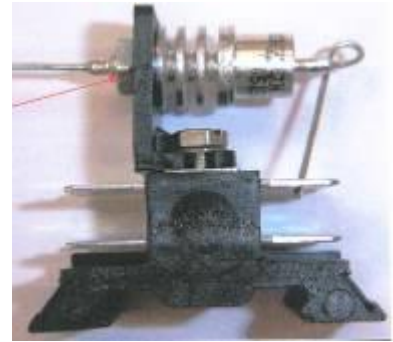
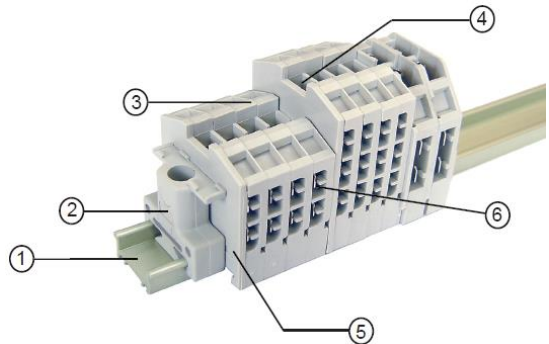
- Alstom: RGV2N/2
- Bombardier: Regio2N / NAT
- **CRRC PZ 浦镇**
- Knorr Bremse
- Siemens



Power distribution and signal control in electrical cabinet

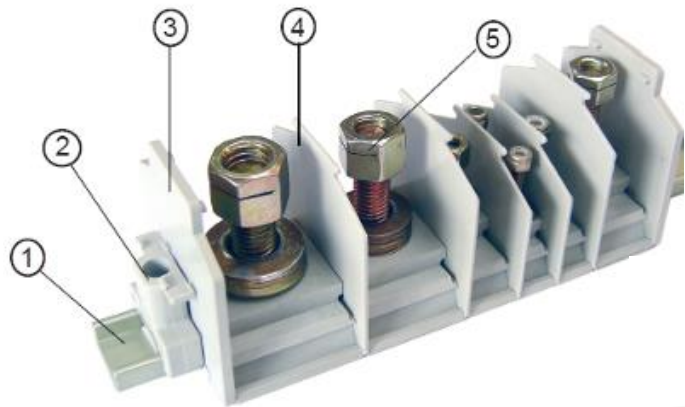
# Terminal Block 法式端子排

## ➤ Fast On Type Terminal Block — BJJ





# Terminal Block 法式端子排



**Stud from M4~M12, Wire cross section from 10mm<sup>2</sup> to 300mm<sup>2</sup>, from 3 40A~320A Rated current**



# D-sub and EMI Shell

- According to MIL C24308
- Current rating: 5 A
- Voltage rating: 500V AC/rms 50HZ
- Screw lock M3 thread or 4-40
- Black glass-filled thermo-plastic, UL94 V0
- Both stamped contacts and turned contacts are available
- Temperature : -55 to 105° C

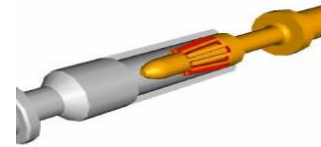
## Application:

- Signal control, I/O connections



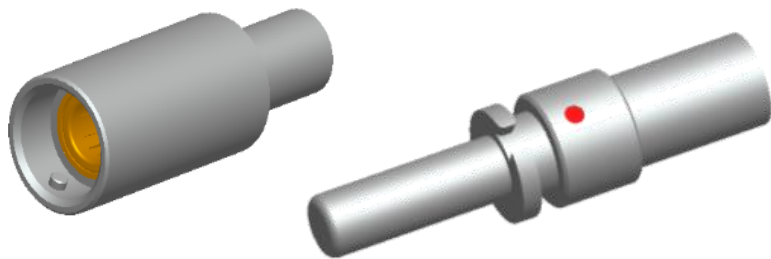
# Star Clip Contact for D-sub

- Material
  - ◆ Body: Brass H62 1/2H, tin plated over nickel
  - ◆ Starclip: BeCu, full gold 30u" plating
- Wires: AWG 18-24
- Mechanical
  - ◆ Wire tensile strength >75% breaking of loaded wire
  - ◆ Contact retention in the insulator >40N, displacement <0.3
  - ◆ Cycle time: 100
- Electrical
  - ◆ Contact resistance <10M Ohms
  - ◆ Nominal current AWG18 = 9A  
AWG20 = 7.5A  
AWG22 = 5A  
AWG24 = 3A



## Grounding Contact (HVSA) 接地连接器

- Current rating: 200A
- Voltage rating: 630V AC
- Max. cable size: 50mm<sup>2</sup>
- Cycle time: 500 times
- In-line connection without insert or shell
- 96 hours for salt spray
- easy to mate



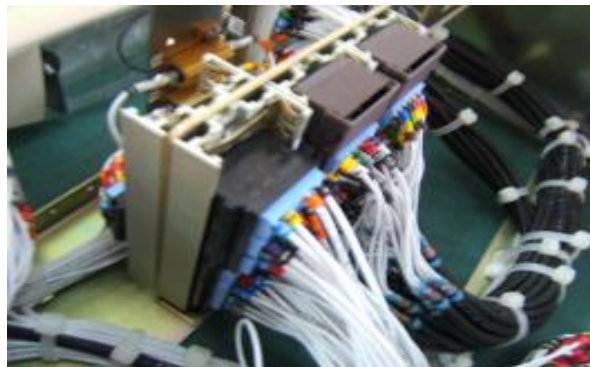
*For Grounding application, no metal shell, simple assembly.*

# Junction Module / Splice 模块连接器

- High density & super high density 超高密度
- Light in weight
- Environmentally sealed
- Fixed on metal or light weight composite mounting track system
- Contact sizes AWG10 to AWG22

## Application:

- Control and communication system



# RFM Rack Floating Modular Connector

## 浮动矩形连接器

- Various contact and mix arrangements available
- Up to 70 contacts
- Crimp and wire wrap contacts
- Misalignment allowed: +/-1.25mm

### Application:

- Doors, bridges, access ramps and detection system
- On the rear of vehicle equipment



## MRC Series 矩形模块连接器

- Consists of rugged Alu. frames, plastic modules with various insert arrangements, and crimping contacts for high current (power) and low current (signal)
- Self lockable system specially designed for application with vibration in trains

### Applications:

- Power and signal for metro applications, Inter-vehicle jumpers

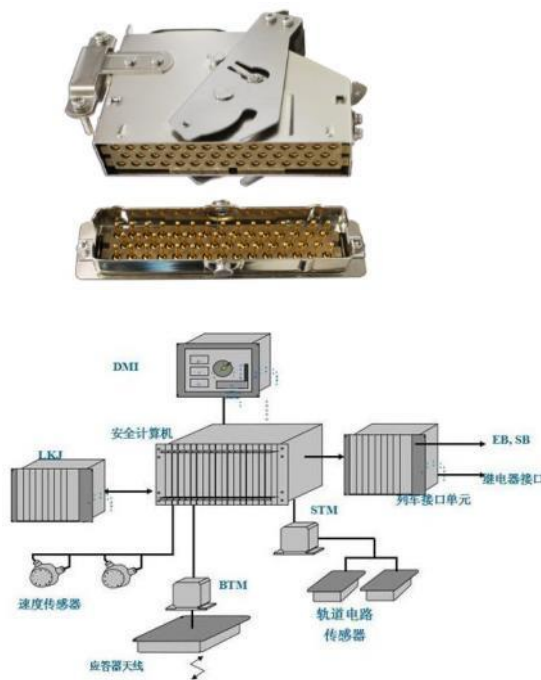


# ASTP Series 矩形信号连接器

- 50 or 44 pins metal housing connector, crimping contacts, replace JAE's QE series.
- Operation Temperature  $-55\text{ C}^{\circ} \sim +125\text{ C}^{\circ}$
- Rated current 13A
- Rated voltage 110V DC
- Insulation resistance  $\geq 5000\text{ M}\Omega$
- Withstanding voltage: 2000V for 1 minutes
- Suitable for wire  $0.2 \sim 2.0\text{ mm}^2$
- Durability  $\geq 750$

## Application:

- **ATP System** (Automatic Train Protection, ATP系统应具有下列主要功能: 检测列车位置、停车点防护、超速防护、列车间隔控制(移动闭塞时)、临时限速、测速测距、车门控制、记录司机操。)



CTCS2-200H





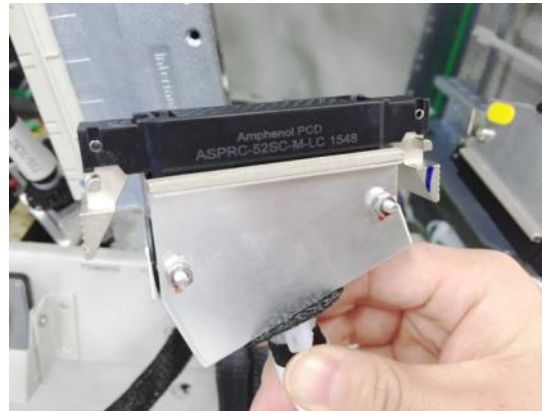
# ASPRC Series 矩形背板连接器

## ASPRC Introduction:

- 52pins plastic housing connector, crimping and PCB contacts, replace JAE's QX series.
- Operation Temperature  $-55\text{ C}^{\circ} \sim +125\text{ C}^{\circ}$
- Rated current 5A
- Rated voltage 330V AC 50Hz or 450V DC
- Insulation resistance  $\geq 5000\text{M}\Omega$
- Withstanding voltage: 1500V for 1 minutes
- Suitable for wire 18~22AWG
- Durability  $\geq 500$

## Application

- ATP(train protection) system
- Signal control in E-Cabinet



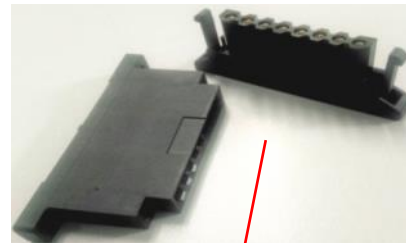
# ASTE plastic connector

## ASTE Introduction:

- 8 or 4 pins plastic housing connector, crimping contacts, replace JAE's TE series.
- Operation Temperature  $-55\text{ C}^{\circ} \sim +125\text{ C}^{\circ}$
- Rated current 13A
- Rated voltage 230V AC
- Insulation resistance  $\geq 5000\text{M}\Omega$
- Withstanding voltage: 2000V for 1 minutes
- Suitable for wire  $0.2 \sim 2.0\text{mm}^2$
- Durability  $\geq 750$

## Application

- For EMU ATP system maker : Hollysys, New RMT Key customer



# M12 connector / M12 连接器

## M12 Snap on & Screw

Designed for  
Railway &  
Industrial automation applications

Quick connection  
360° shielding  
Rated voltage: 30 to 250 V  
Rated current: 0.5 to 4 A  
4/8 contacts available  
A, D, X code available  
Durability: 100 cycles  
Insulation Resistance: 100MΩ Min  
IP67



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# M12 A Coding

- Refers to the M12 A-coding standard IEC 61076-2-102
- Rated Voltage : 250V (4Way) / 30V (8Way)
- Rated current: 4A (4Way) / 2A (8Way)
- Individual 360° shielding 4 & 8 contacts
- Contacts: #20 / #22
- IP class: IP67

## Application:

- Ethernet 以太网
- Sensor 传感器
- Can 总线



# M12 D Coding

- Refers to the M12 D-coding standard IEC 61076-2-102
- Rated Voltage : 250V (4Way)
- Rated current: 4A (4Way)
- Individual 360° shielding 4 contacts
- Contacts: #20
- IP class: IP67

## Application:

- Ethernet 以太网
- Sensor 传感器
- Can 总线



# M12 X Coding

- Refers to the M12 A-coding standard IEC 61076-2-109
- Rated Voltage : 30V (8Way)
- Rated current: 2A (8Way)
- Transfer class EA for 1 and 10 Gigabit
- Individual 360° shielding 8 contacts
- IP class: IP67

## Application:

- Ethernet 以太网
- Sensor 传感器
- Can 总线



# Push Pull M12 connector / 推拉自锁快速连接器

## Features

- Just one click, push pull connection, very safe, save times
- Compact size, functional design, reliable sealing, durable construction and electrically stable.
- Protect by harsh vibration.
- Design feature incorporates a 360° shielding system from the cable to the appliance housing.

## Application:

- Video Surveillance
- Passenger information systems
- Data transfer

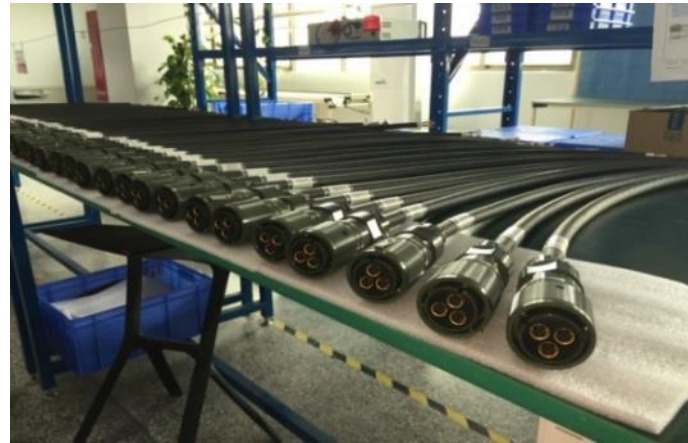


## Cable Assembly Capability 线束组装



Temperature sensor cable  
assembly for CRRC EMU train---  
ASGTC 20-07\_ 7pin connector

Real-time temperature monitoring  
of bogie cable assembly for CRRC  
EMU train





# Cable Assembly Capability 线束组装



# Amphenol References in RMT

- Kawasaki Heavy Industries (KHI\_川崎): HVAC, inter vehicle coupler
- Indian Railway (印度铁路): Inter vehicle coupler
- Deutsche Bahn (DB) (德国铁路): Refurbishment of Wagons
- Merak (Alstom) (美莱克): Air Condition
- Bombardier China (BST 庞巴迪市场): Electric Cabinet, Sandy system, CRRG Sifang (四方), PZ (浦镇), Zhuzhou (株机), Datong (大同), Dalian (大连) SATCO (阿尔斯通合资), Zhuzhou times (株洲时代), Hollsys (和利时), application for: EMU (动车, 高铁), Magnetic suspension 长沙磁悬浮, 北京南京上海苏州无锡青岛孟买合肥成都等地铁。
- Stadler, Alstom

SIEMENS

ALSTOM



Kawasaki  
INNOVATING RAIL

KINKI SHARYO

CNR  
中国北车



VOSSloh

THALES

CAF

AnsaldoBreda  
Una Società Finmeccanica

MITSUBISHI  
HEAVY INDUSTRIES, LTD.

Our Technologies. Your Tomorrow

Talgo

VÖTH

STADLER  
Cleverer Lösungen auf der Schiene



# EN 45545 Certification 防烟防火认证

## Conformity

In accordance with R22 / R23 / R26  
according to DIN EN 45545:2013

- ◆ Heavy|Mate / C146
- ◆ ASGTC
- ◆ HVGTC
- ◆ EMP
- ◆ ASVG
- ◆ ASRC
- ◆ ASTP
- ◆ GT
- ◆ M12





Train



Electric Vehicle



Industrial



Big Data Center

THANK YOU

Amphenol PCD Shenzhen