STOCK CODE: 300351

YGC Megawatt Charging Product Introduction

YONGGUI

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YONGGUI

01 50 Years Interconnect Expert & Market leader for High Power Charging

1973
Foundation

1979
Build 1st connector

2008
Sichuan Yonggui
Set up connector hub

2009
High speed train entry
Developed YGC-216 inter train connector

2012
IPO;
1st charging connector release

2012

2015
GBT DC

2018
2nd gen DC

2022
GB HPC

2023
CCS2 HPC

2024
NACS HPC

2025
Megawatt

YONGGUI

01

Company Profile

Yonggui is a **high-tech enterprise** with 50+ years expertise focused on the research and development, manufacturing, sales and technical support of connectors, connector systems and smart precision products. It was listed on **Shenzhen Stock Exchange** in September 2012.
The products are distributed in the three major fields of **new energy and vehicle (57%), railway and industrial (37%), special market (6%).**
Yonggui has **837 national patents**, and has obtained ISO 9001, ISO/TS 22163, CRCC, ETL, UL and IATF16949 certifications.

Market Value

7,012M CNY

Consolidated sales

2,242M CNY

Employee

3171

34% of them are engineers.

YONGGUI

01

Charging products of Yonggui

China

比亚迪汽车 · 上汽集团 SAIC MOTOR · 长安汽车 · 北汽集团 BAIC Group · CHERY · 长城汽车 · 理想 · 东风汽车 · 上汽通用汽车 SAIC-GM · 吉利汽车 GEELY AUTO · CATL · 上汽通用五菱 SGMW · 广汽新能源 GAC NE · 中国一汽 · 宇通客车 · HONDA · SERES 赛力斯 · VOLVO · SANY · mi · 东方电气 DEC · 远景能源 · WANBANG XNY 万帮新能源 · VMAX · 东风日产 NISSAN · EVE 亿纬锂能 · SUNGROW 阳光电源 · 国家电网 STATE GRID 许继集团有限公司 · 特来电 TGOOD · 科陆电子 · MEGMEET · VERTIV 维谛技术 · DTT 大唐电信 · MINGYANG SMART ENERGY 明阳智能 · 成都铁路局 · NOKIA · 中国中车 CRRC · 杭州地铁 HANGZHOU METRO · 广州地铁 Guangzhou Metro · 上海地铁运营有限公司 SHANGHAI METRO OPERATION CO.,LTD · 北京地铁 Beijing Subway · NARI 国电南瑞科技股份有限公司 · BOMBARDIER · CSG 科大智能 · 中国国家铁路集团有限公司 CHINA RAILWAY

Rest of APAC

BYD · MG · HYUNDAI Rotem · DAWONSYS · 中国中车 CRRC · 长安汽车 CHANGAN AUTO · WULING · VINFAST · FMT · TOYOTA · 株式会社キューヘン KYUHEN Co.,Inc. · APTIV · AMITA Amita Technologies Inc. · ptt Group · GEBA CABLES · Amphenol®

North America

PRATT MILLER · NIKOLA · MONARCH · CNH · Amphenol® · VERTIV 维谛技术 · 中国中车 CRRC

Europe

SIEMENS · ABB · ALSTOM · MG · VOLVO · Valeo · 中国中车 CRRC · ZEEKR · VESTEL · alfatec

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01

Charging products of Yonggui

Socket and & accessorie

DC Charging Connector

AC Charging Connector

Mode2 Product

Discharging product

Liquid cooling system

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Charging Product Key Customers

比亚迪汽车 · CHERY · 广汽新能源 GAC NE · ABB · EAST 易事特 · TGOOD 特来电 · GRASEN 嘉盛电源

吉利汽车 GEELY AUTO · WULING · 小鹏 · SERES 赛力斯 · CSG 科大智能 · 中国中车 CRRC · Li Auto · WANBANGXNY 万帮新能源

北汽集团 融世界 创未来 · 中国一汽 FAW GROUP · 国家电网 STATE GRID 许继集团有限公司 XJ GROUP CORPORATION · 绿能慧充 GRESGING · KEHUA 科华恒盛 · TITANS

Above are only partial of Yonggui customers

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Globalizing Sales & Operation Footprint

Sichuan: 1.7B sales
- Interconnect; gangway; pantograph
- Engineering center
- China South West Market

Changchun
- NEV connectors
- China North market

Shanghai
- Engineering center
- China East market

EMEA
- Germany
- Poland (partnership)

America
- Los Angeles
- Mexico (partnership）

Zhejiang: 400M sales
- Railway interconnect
- Engineering center
- Railway market

Bangkok: 100M sales
- Nov'24 SOP
- Connector systems

APAC
- Singapore

Shenzhen
- Charging connector
- Engineering center
- China South market

- Headquarter
- Manufacturing site
- Engineering center
- Sales office

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Key Applications

Zeeker HPC	Avatar HPC	H Customer HPC	Li Auto HPC	CCS2 HPC	Megawatt
					

Honda Mode 2	H AITO AC	H Discharge	BYD AC Gen3	BYD AC Gen4	FAW Charge & Discharge
					

Geely AC Inlet	BYD AC inlet	Type2 AC socket	Seres Combo	MG CCS2	Xpeng AC
					

Above are only partial of applications

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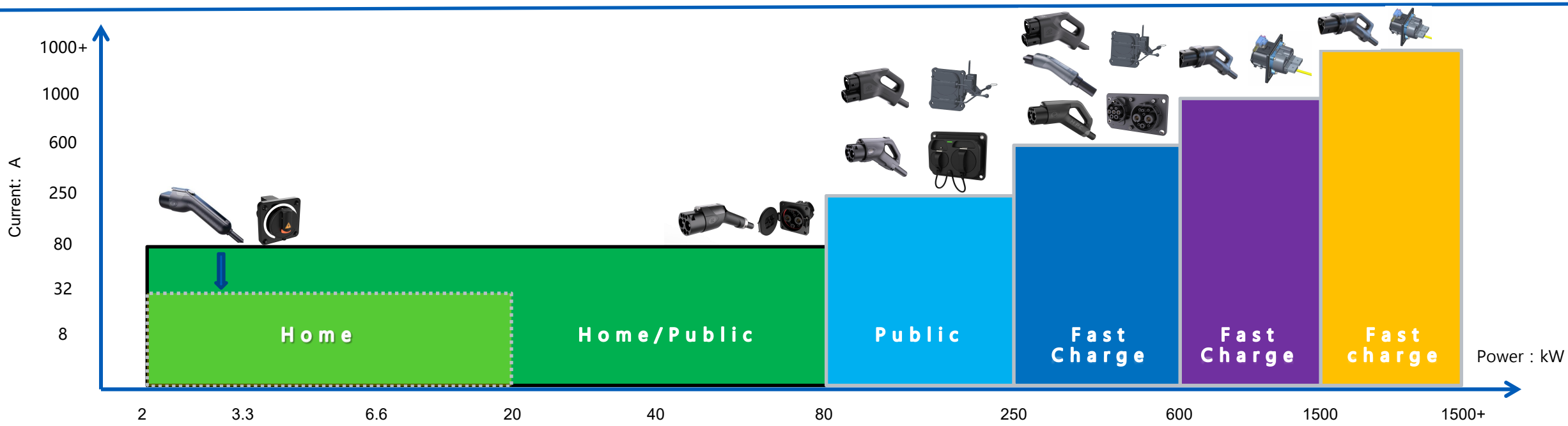
Yonggui Charging Product Portfolio

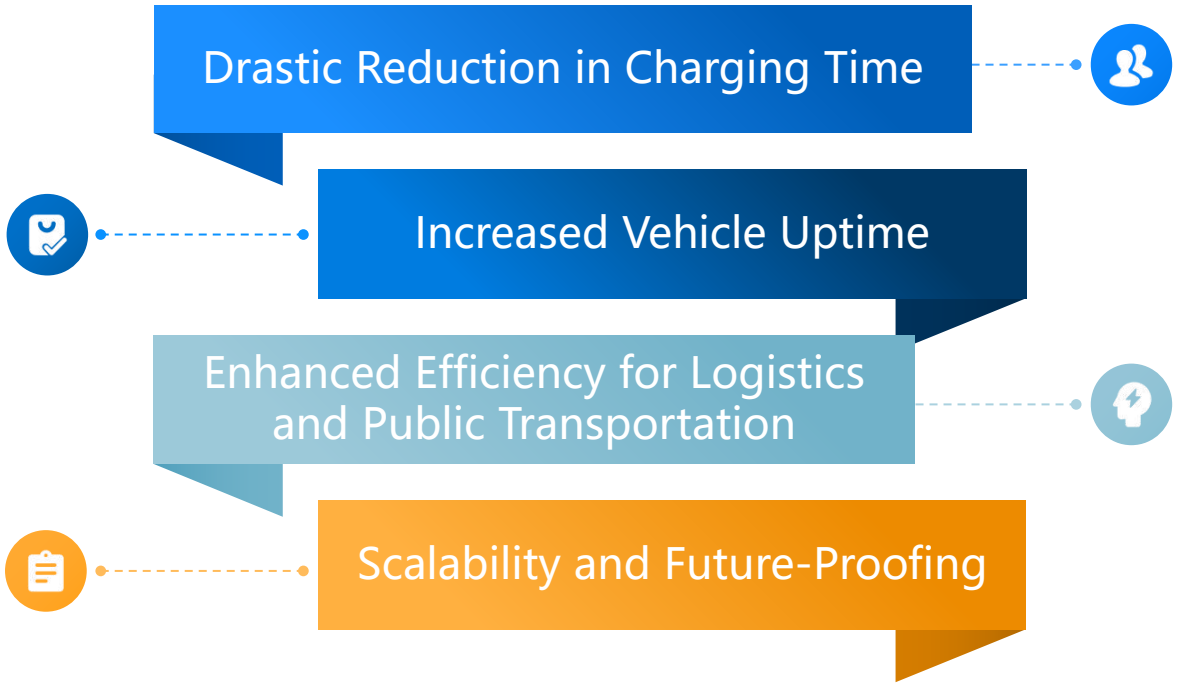


Product		YGC-AC	YGC-DC1	YGC-DC2	YGC-HPC1	YGC-HPC2	YGC-HPC3
Wire	Connector	1.5-6mm²	1.5-16mm²	20-70mm²	2x (22~48) mm²	4x35mm²	TBD
	Inlet	1.5-6mm²	1.5-16mm²	25-70mm²	95mm² (Cu) 120mm² (Al)	240-450mm²	TBD
Max Current		32A	80A	300A	600A	1500A	1500A+
Max Power		20kW	80kW	300kW	600kW	1MW+	1MW+~4.5MW
Liquid Cool	Connector	N/A	N/A	N/A	Yes	Yes	Yes
	Inlet	N/A	N/A	N/A	N/A	N/A	Yes

Why Megawatt Charging?

The quick charging time provided by MCS translates directly to **increased vehicle uptime**. Heavy-duty electric vehicles can spend more time in operation and less time being charged, which is particularly advantageous for logistics and public

MCS is **designed with scalability** in mind, capable of adapting to future increases in battery capacity and charging demands. As technological advancements continue to push the boundaries of electric transportation, MCS can evolve to meet the growing needs of the industry.



Megawatt Charging Systems significantly shorten the charging time for large electric vehicles. For example, a truck with a 1000 kWh battery can be fully charged in approximately **20-30 minutes,** compared to several hours required by lower-power chargers. This rapid charging capability enables faster turnaround times for vehicles, maximizing their time on the road and minimizing the time spent at charging stations

The benefits of MCS are especially significant for the logistics and public transportation sectors. The ability to quickly recharge large EVs ensures that **fleets can maintain tight schedules** and reduce operational downtime

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Market Adoptions Landscape

Megawatt Charging (MW)

MCS: Cross-industry effort involving truck manufacturers, suppliers, and charging operators to ensure fast charging of commercial vehicles at charging speeds of up to 1+ MW, since current technology (CCS) is limited to 500 kW, which is not sufficient to drive electrification of heavy-duty transport and charge trucks within the 45-minute break.

MCS Connector

Source : IDTechEx

	MCS	CCS
Power range	1 – 3.75 MW	22 - 400 kW
Voltage range	500 - 1250 V	50 -1000 V
Maximum current	3000 A	500 A

MW charge Hardware manufacturer	ABB, heliox, SIEMENS, TESLA, alpitronic, DELTA, DW Designwerk, POWER ELECTRONICS
Cables / Connectors manufacturers	CAVOTEC, HUBER+SUHNER (MCS for CV; up to 4.5 MW 3000 A & 1500 V), BRUGG eConnect (Brugg), STÄUBLI (Staubli; up to 4.5 MW 3000 A & 1500 V), paXos (Paxos), PHOENIX CONTACT (Phoenix), TESLA
Charging Station Network operators	milence (Milence : JV Volvo, Traton, & Daimler (2022) $500 million investment.), GREENLANE (Greenlane: JV Daimler,BlackRock, NextEra (2023) , $650 million), WattEV (up to 1.2MW.), TeraWatt (TeraWatt), TESLA
OEMs	DAIMLER TRUCK, TRATON, MAN, SCANIA, VOLVO, TESLA
Pilot Market	**Europe and North America** The final MCS specifications, which will be needed for commercial roll-out, are expected for 2024.
Consortium	CHARIN, EVs@Scale, Charging Interface Initiative (CharIN); SAE INTERNATIONAL, Megawatt Charging System for Electric Vehicles J3271
Chinese Counterpart technology : Ultra-ChaoJi : electrified heavy-duty vehicles (HDVs), airplanes and ships.	

China Market Leaders

Star Charge 星星充电 · AUTEL 道通 · Sinexcel 盛弘电气

YONGGUI

HUAWEI · 小桔充电

XCMG 徐工集团 · CNHTC · 中国重汽 SINOTRUK · 三一重工 SANY

YGC MCS Charging Connector Advantages and Spec.

Advantages and features:

1. PT1000 is close to the terminal surface, precise temperature control, the temperature of the temperature sensor is closer to the terminal temperature, the product is safe and reliable;
2. High current capacity: 1000-1500A;
3. Jack terminal is welded by ultrasonic wave, which has lower resistance and lower contact temperature rise;
4. The plug adopts a cover mode, so that the plug is not directly stressed, which can effectively increase the strength of the plug.
5. A single connector can achieve a protection level of IP67 (the protection level is better than Amphenol);
6. Oil cooling is adopted. The oil is coated with copper, and the flow of oil during charging can effectively remove the charging process. heat. Achieve safe and reliable charging mode;
7. Connecting cables in parallel can reduce the outer diameter of the wires and effectively reduce the weight of the wires.

Technical Data Sheet	
Reference Standards	IEC TS 63379 ; SAE J3271-1 to -5
Charging model	Charging mode 4, connection method C
Rate Voltage	1000/1500V DC
Rate current	1000 /1500A DC
Withstand voltage	1.Between DC+ and DC-4000V AC 1min; 2.4000V AC 1min between DC+, DC- and PE, CP, PP respectively; 3.between PE and CP :500V AC 1min; 4.Between CP and PP:500V AC 1min; between 1 and 2 :500V AC 1min 5.DC+, DC- and temperature control are ≥4000V AC 1min respectively; *Note: a. PP and PE are connected, the above test, the leakage current is <10mA
Insulation resistance	1.DC+, DC-≥100MΩ 2.The resistance between DC+, DC- and PE, CP, PP respectively is ≥100MΩ 3.;≥100MΩ between PE and CP respectively; 4. ≥100MΩ between CP and PP; ≥100MΩ between 1 and 2 5. ≥100MΩ between DC+, DC- and temperature control respectively *Note: a. PP and PE are connected; b. The above test voltage is: 1500V DC
Protection level	IP44 before mating; IP54 after mating; electrical part: IP67 (terminal and cable connection area)
Number of insertions	≥10000
Insertion and extraction force	≤100N
Operating Ambient temperature	-30℃ ~+ 50℃
Flame retardant grade	UL 94 V-0
Power contact surface plating, Layer Material	Ordinary silver/wear-resistant silver
Cable specification	1000A/1250A/1500A: 4*35 mm² OD; 44.5mm

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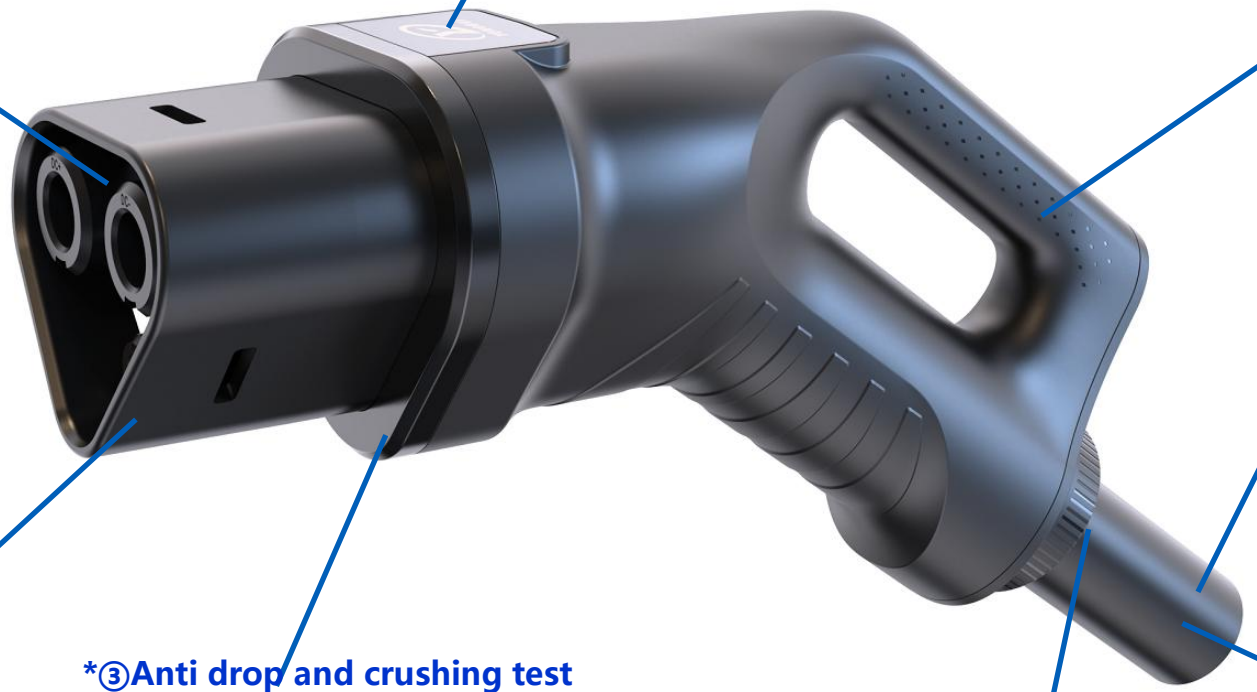
Key Design Features of MCS Charging Connector

*①Liquid cooling circuit

One in and two out on one side, oil cooling, ultrasonic welding of terminals, lower welding resistance and more reliable 1500A rated current.

*⑦Laser marking

Customize laser marking of customer required information

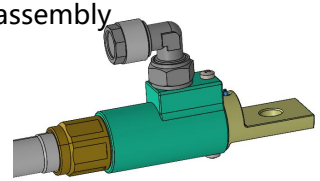


*⑥YGC specific Element

Black Starry Sky // Galaxy Array // Angular style

*⑤Tail terminal

Copper busbar type tail terminal connection, larger contact area; liquid outlet pipe joint can be rotated 360 degrees for easy assembly

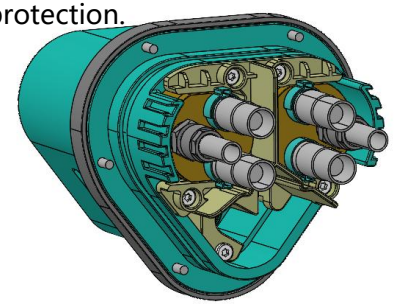


*② Overall structure

●4*35, 2 in and 4 out, submersed oil cooling

●The handshake is ergonomic and easy to hold.

●The electrical part inside the connector is IP67 ●The terminals are sealed, which results in high cost and more reliable protection.

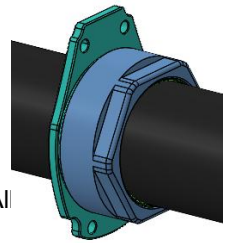


*③Anti drop and crushing test

Metalclad flange:
higher strength, lower risk of falling and crushing rupture

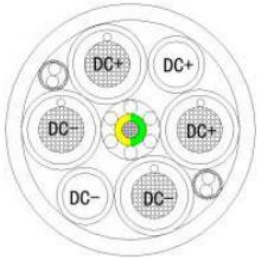
*④Clamping structure

Built-in clamping structure, simple appearance, Four-flap clamping ensures flow without squeezing the water pipe

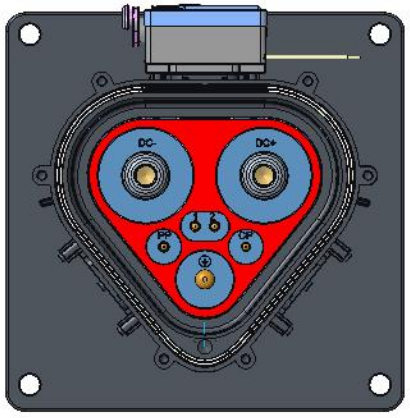


*④Cable structure

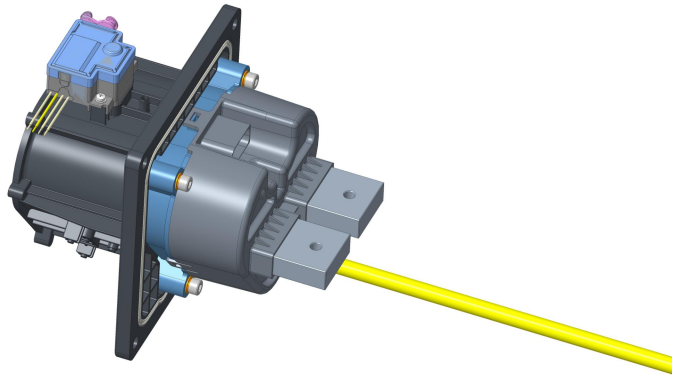
4*35 power line, inlet and outlet pipe φ8-10
OD 44.5±1
Cable is lightweight



Yonggui MCS Charging Inlet Advantages and Spec.



Front view



Side view

Advantages and features:

1. High power transmission capability: maximum power 2.25 MW (DC1500V, 1500A).
2. The structure is robust and meets the needs of heavy-duty vehicles.
3. Multiple safety measures: temperature monitoring, etc., help reduce the risk of failure and ensure operational safety during high-power charging.
4. Follow global accepted standards and compatibility: Follow globally accepted standards.
5. Intelligent communication system: The MCS charging interface adopts the ISO 15118 protocol, and the vehicle is automatically authenticated to start charging without additional identity verification.

Items	Technical datasheet
Rated voltage	DC1500V
Rated current	1500A(DC)
Protection level	With the charging connector: meet IP44; Jack and socket body front end assembly: meet IP67.
Number of insertions	≥10000 times
Insertion and extraction force	≤100N
Withstand voltage	① ≥3000V AC 1min between DC+ and DC- ② ≥3000V AC 1min between DC+, DC- and PE, CP, PP respectively ③ Between signal lines ≥500V AC 1min
Insulation resistance	① Between power and between power and signal: ≥100MΩ 1500V DC 1min ②Between signals: ≥100MΩ 500V DC 1min
Flame retardant grade	UL94 V-0 (Plastic parts)
Operating Ambient temperature	-40℃~40℃
Temperature sensor type	PT1000
Standard	Main standard: IEC 62196
Cable connect spec.	DC+, DC-: Overlapping copper busbars are recommended PE:25mm² PP,CP:0.5mm² Electronic lock motor+: 0.5mm² Electronic lock motor -: 0.5mm² Signal feedback K1:0.5mm² Signal feedback K2: 0.5mm² Temperature sensor+: 0.5mm² Temperature sensor -: 0.5mm²

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Key Design Features of MCS Inlet

Electronic lock

- Select high-quality suppliers with excellent parameter performance and reliability guarantee;

Insulator assembly

- Use high-strength nylon material to ensure product strength;

PCBA assembly

- Selected high-quality suppliers with excellent reliability guarantee;

Tail cover

- Use high-strength nylon material to ensure product strength;

Pin assembly

- Use highly conductive materials and combine them with key surface treatments to ensure product reliability;

Flange assembly

- Produced by die-casting to ensure product strength;

Seal assembly

- Use high-quality, high-compression-ratio silicone rubber material to ensure sealing reliability;

Shell assembly

- Use high-strength nylon material to ensure product strength;

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Temperature Rise test of Inlet

Standard:
Refer to 1.1 of the US Renewable Energy Laboratory Report 89238;

Inspection content:
MCS charging inlet is connected to 3m cable, DC +/- 6m in total, 1500A DC,
temperature rise after stabilization≤60K;

Requirement:
Inlet temperature rise ≤60K;

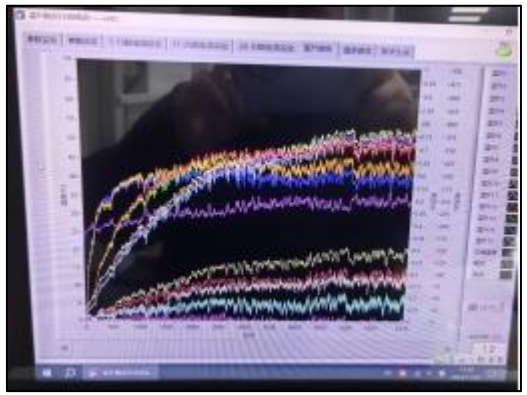
Calculation method:
Temperature rise = terminal temperature after test - real-time ambient temperature

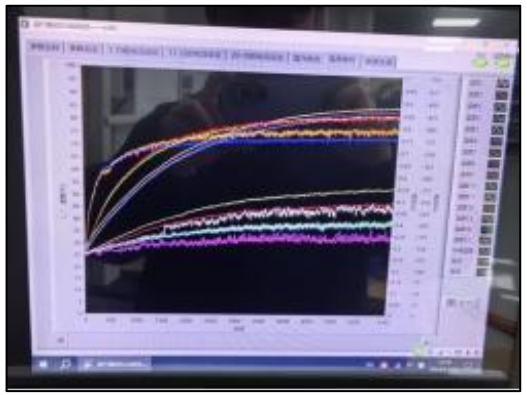
Measurement equipment:
High-precision computer temperature rise tester/multimeter/liquid cooling system (MCS charging gun)

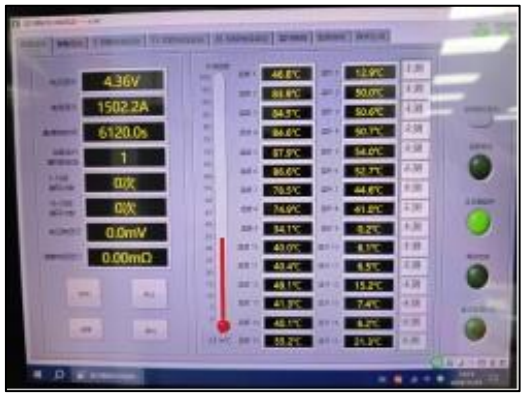
Test result

Inlet connection		Cable			Tail	
2# : DC-	3# : DC+	4# : 1	5# : 2	6# : 3	7# : DC-	8# : DC+
49.1K	48.8K	49.5K	52.5K	51.7K	43.9K	40.8K

Test pictures







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Cooling Unit

Product Technical Data Sheet	
External dimensions	400mm*370mm*550mm(L*W*H)
Product weight	30.0Kg
Input voltage	24V DC
Heat exchange	6.0-9.0KW (@ 50 ℃ ambient temperature (TA) return liquid temperature ≤ 85 ℃, flow rate 10.0-15.0L/min, air volume 2000-3000m ³/h)
Cooling medium	Ethylene glycol/Shell E4
Ambient temperature	-30℃~50℃
System flow	0~15.0L/min
Supply pressure	≤8.0Bar
Noise	Environmental temperature ＜ 40 ℃, noise ≤ 60dB (A) Environmental temperature ＞40 ℃, noise ≤ 65dB (A)
Maximum power	600W
Protection grade	IP 68
Communication method	MODBUS is based on 485
Working life	25000h

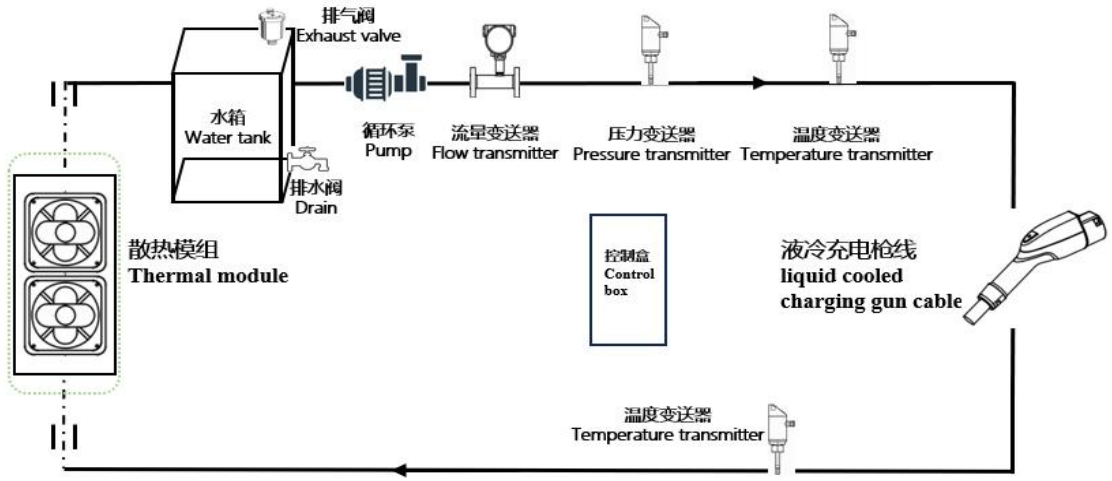
Liquid cooling system

Liquid Cooling System

Working principle of liquid cooling system

When charging with a high-power charging connector cable, it can deliver a charging current of 1000-1500A. Conventional charging techniques require the use of thick and heavy cables, which often cause the high-power charging connector cable to overheat. In order to facilitate charging operation, the high-power charging connector cable adopts a liquid (oil) cooling system for cooling and heat dissipation. The charging connector liquid (oil) cooling system uses environmentally friendly cooling media to provide a cold source for the high-power charging connector cable, which is easy to maintain.

This cooling medium can simultaneously cool the cable and the DC power terminal of the charging connector. A closed circuit is formed by connecting the inlet and outlet pipes of the charging connector liquid (oil) cooling system with the outlet and inlet pipes of the high-power charging connector line. The cooling medium is driven by a circulating pump to dissipate heat, and the heat generated by the high-power charging connector line is transferred to the circulating cooling medium. The cooling medium circulates to the heat exchanger under the action of the pump, and then transfers the heat to the heat exchanger. The heat exchanger continuously dissipates heat by blowing air through the cooling fan. During this process, the system collects the inlet and outlet liquid temperatures in real time through sensors, adjusts the speed of the pump and fan in real time based on the collected temperature, and achieves real-time adjustment of the heat dissipation power, so that the high-power charging connector line is within the appropriate working range. To ensure the safe and stable operation of the liquid (oil) cooled DC charging connector.



Working principle diagram of high-power charging liquid cooling system

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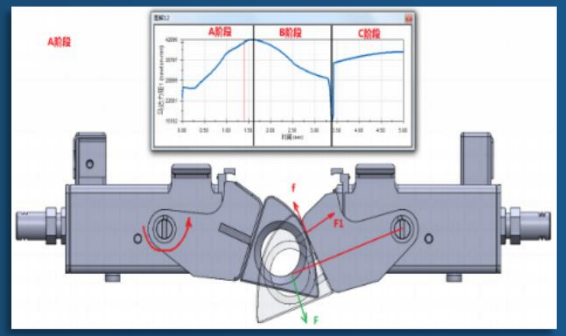
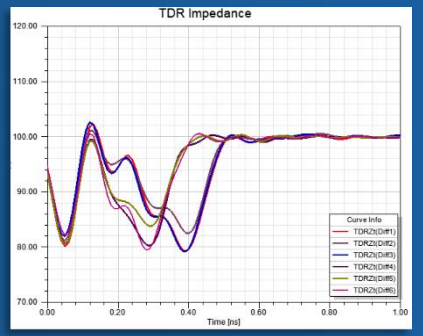
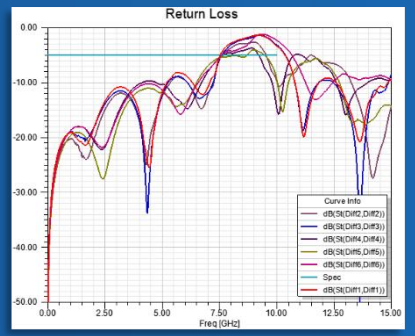
04 Engineering Simulation & Analysis Capability

Structure strength

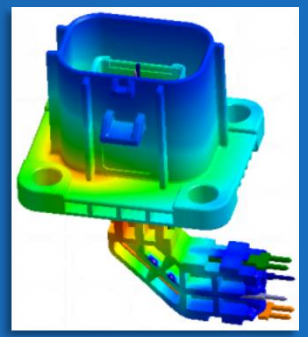


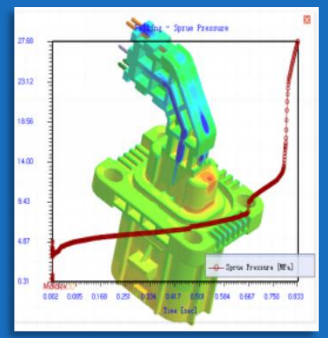
Signal Integrity



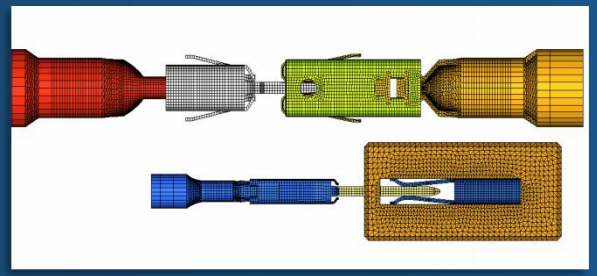


Mold Flow

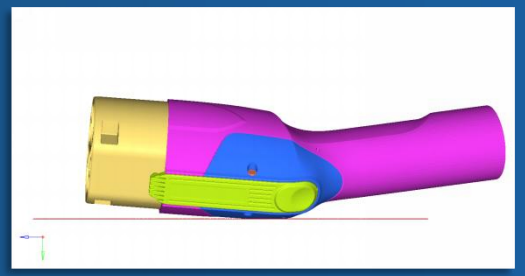




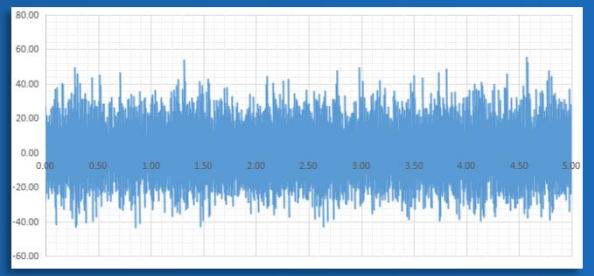
Thermal Analysis



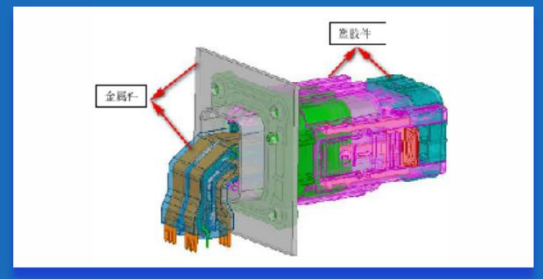
Drop Test



Transient Simulation



EMC



Test Center

China National Accreditation Service for Conformity Assessment

LABORATORY ACCREDITATION CERTIFICATE

(Registration No. CNAS L12326)

Sichuan Huishitong Testing Technology Co., Ltd.

(Legal Entity: Sichuan Huishitong Testing Technology Co., Ltd.)

No.68, Jinjialinshang Street, Fucheng District, Mianyang, Sichuan, China

is accredited in accordance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories(CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence to undertake the service described in the schedule attached to this certificate.

The scope of accreditation is detailed in the attached schedule bearing the same registration number as above. The schedule forms an integral part of this certificate.

Effective Date：2025-06-10

Expiry Date：2031-06-09

Signed on behalf of China National Accreditation Service for Conformity Assessment 陈朝华

China National Accreditation Service for Conformity Assessment (CNAS) is authorized by Certification and Accreditation Administration of the People's Republic of China (CNCA) to operate the national accreditation schemes for conformity assessment. CNAS is a signatory of the International Laboratory Accreditation Cooperation Mutual Recognition Arrangement (ILAC MRA) and the Asia Pacific Accreditation Cooperation Mutual Recognition Arrangement (APAC MRA).

The validity of the certificate can be checked on CNAS website at http://www.cnas.org.cn/english/findanaccreditedbody/index.shtml.

- CNAS Certification(ISO/IEC 17025)
- 200+ Testers / Chambers
- Qulified by OEMs
- Full Test Ability for Connectors

BYD

2019-7-5

CHERY

2019-4-23

GEELY

2019-3-17

SGMW

2019-3-10

Envirenment Test

Electrical Test

Mechnical Test

Sealing Test

YONGGUI

05 Key Milestone of China Domestic Megawatt Charging development Schedule

Project kick pff

2023/10

2024/5

Prototype Samples ready

Charging connector and Inlet tooling samples ready

2024/11

2024/11-2024/12

Liquid cooling system ready

Small batch production

2025/2-2025/3

2025/4

Charging connector and Inlet come into MP

YONGGUI

Key Milestone of MCS development Schedule

Market investigation

2024/3-2024/10

2024/10

Project kick off

Prototype Samples ready

2025 Jan.

2025/6

Charging connector tooling samples be ready

Inlet tooling samples be ready

2025/7

2025/10-2025/12

Charging connector and Inlet come into MP

YONGGUI

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CONNECTION TO FUTURE