



# 2023

## 环境、社会及管治报告

Environmental, Social and Governance Report

中国铁路通信信号股份有限公司  
China Railway Signal & Communication Co., Ltd.

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# 关于本报告

## About this Report

本报告是中国铁路通信信号股份有限公司发布的第四份环境、社会及管治报告，本着客观全面、规范透明的原则，详细阐述 2023 年度公司环境、社会及管治工作的管理理念、亮点实践及年度成效。本报告以中文及英文编制，如有差异，请以中文文本为准。

This Report is the fourth Environmental, Social and Governance Report of China Railway Signal & Communication Co., Ltd. Based on objective, comprehensive, regulative and transparent principles, this Report expounds management ideas, key practices and annual achievements for environmental, social and governance work of China Railway Signal & Communication Co., Ltd. in 2023. This Report is compiled in Chinese and English versions. Should there be any minor content difference, the Chinese version prevails.

### 报告范围

#### Scope of the Report

除特殊说明外，本报告涵盖中国铁路通信信号股份有限公司总部、分支机构及附属公司，与《中国铁路通信信号股份有限公司 2023 年年度报告》对外披露范围保持一致。

Unless otherwise stated, this Report includes China Railway Signal & Communication Co., Ltd.'s headquarters, all its branches and subsidiaries, with the same scope of 2023 CRSC Annual Report.

时间范围为 2023 年 1 月 1 日至 2023 年 12 月 31 日，部分内容超出此范围。

The reporting period is from January 1, 2023 to December 31, 2023. Some contents are sourced from historical data.

### 参考标准

#### Reference Standards

全球报告倡议组织《可持续发展报告标准（GRI Standards）》

The Sustainability Reporting Guidelines issued by the Global Reporting Initiative

国务院国资委《关于国有企业更好履行社会责任的指导意见》

The Guidelines on Corporate Social Responsibility of State-owned Companies issued by State-owned Assets Supervision and Administration Commission (SASAC) of the State Council

香港联合交易所《环境、社会及管治（ESG）报告指引》

Environmental, Social and Governance (ESG) Reporting Guide issued by HKEX

上海证券交易所《上市公司自律监管指引第 1 号—规范运作》

Guidelines No. 1 of the Shanghai Stock Exchange for the Self-regulation of Listed Companies - Standardized Operation

中国社会科学院《中国企业社会责任报告指南（CASS-ESG 5.0）》

Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-ESG 5.0) by the Chinese Academy of Social Sciences

气候相关财务信息披露工作组建议（TCFD）

Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD)

### 汇报原则

#### Reporting Principles

本报告遵循《环境、社会及管治（ESG）报告指引》有关“重大性”“量化”“平衡”“一致性”原则的要求，通过可持续发展议题重大性分析回应“重大性”原则，通过量化数据列表和一致的汇报方法回应“量化”和“一致性”原则，通过清晰披露所有成就及改进计划，不偏不倚地呈现公司 ESG 表现。

This Report complies with the materiality, quantitative, balance and consistency principles specified in the requirements of the ESG Reporting Guide. It responds to the materiality principle by conducting material analysis on sustainability issues, meets the quantitative and consistency principles via quantitative data list and consistent reporting methods, and presents the Company's ESG performance impartially by clearly disclosing all achievements and improvement plans.

### 发布周期

#### Reporting Cycle

本报告为年度报告，于每年 3-4 月发布。

This is an annual report released in March or April.

### 称谓说明

#### Reporting Specification

为便于表达，本报告中提及的“中国通号”“公司”“我们”等均指代“中国铁路通信信号股份有限公司”。

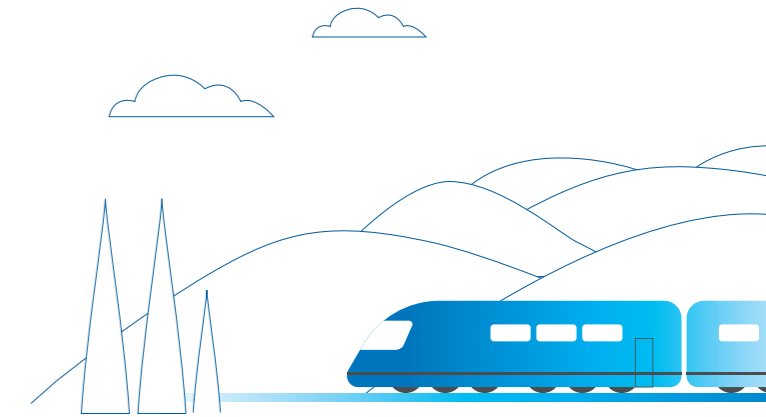
For the convenience of expression, “China Railway Signal & Communication Co., Ltd.” may be expressed as “CRSC”, the “Company” and “We”.

### 可靠性保证

#### Reliability Guarantee

公司董事会承诺对报告内容进行监督，确保不存在虚假记载、误导性陈述或重大遗漏。

The board of directors of the company promises to supervise the content of the report to ensure that there are no false records, misleading statements or major omissions.



### 数据说明

#### Data Specification

本报告关键财务绩效来自《中国铁路通信信号股份有限公司 2023 年年度报告》，其他数据来自公司内部管理体系。本报告相对公司往年 ESG 报告披露范围并无重大调整，且使用一致的披露统计方法。除特别说明外，本报告均以人民币为金额单位。

All key financial performance data disclosed in this Report are collected from the 2023 Annual Report of China Railway Signal & Communication Co., Ltd., and other data are mainly sourced from internal management systems of the Company. There is no significant adjustment to the scope of disclosure in this Report compared with the ESG reports of the Company in previous years, and consistent disclosure statistical methods are used. Unless otherwise specified, this Report is presented in RMB as the currency unit.

### 报告获取

#### Access to the Report

本报告提供纸质版和电子版两种形式。您可以登录中国铁路通信信号股份有限公司门户网站“文化与责任-社会责任”板块或香港联合交易所、上海证券交易所网站阅读或下载本报告。

This Report is available both in hard copy and electronic format. You may browse or download the Report at the official website of CRSC (Culture & Responsibility - Social Responsibility) or at the websites of HKEX and the Shanghai Stock Exchange.

# 董事长致辞

## Message from the Chairman



董事长 楼齐良  
Chairman Lou Qiliang

中国铁路通信信号股份有限公司

China Railway Signal & Communication Co., Ltd.

党的二十大报告指出，高质量发展是全面建设社会主义现代化国家的首要任务。ESG 是贯彻落实新发展理念的题中之义，与党的二十大一系列宏伟蓝图和伟大目标高度契合，对推动中国式现代化进程具有重要意义。

The report to the 20th National Congress of the Communist Party of China (CPC) pointed out that to build a modern socialist country in all respects, we must, first and foremost, pursue high-quality development. ESG is the essence of implementing the new development philosophy, which is highly consistent with the grand blueprint and great goals of the 20th CPC National Congress, and is of great significance for promoting the process of Chinese modernization.

中国通号践诺可持续发展，发挥中央企业上市公司先锋示范作用，主动践行 ESG 理念，不断提高 ESG 专业治理能力与风险管理能力。回顾 2023 年，我们坚决贯彻落实党中央、国务院重大决策部署，紧紧围绕高质量发展，聚焦自身功能定位，强化服务国家战略职责

使命，埋头苦干、顶压前行，推动党的建设、绿色低碳、科技创新、安全生产、促进区域协调发展等各项工作迈上新台阶，以实际行动扎实推动各项工作稳步向前。

CRSC is committed to sustainable development, playing a pioneering and exemplary role as a centrally administered state-owned listed company, actively practicing the ESG philosophy, and continuously improving ESG professional governance and risk management capabilities. Looking back on 2023, we resolutely implemented the major decisions and arrangements of the Party Central Committee and the State Council. By closely focusing on high-quality development, we strengthened our own functional positioning, and enhanced our responsibility and mission to serve the national strategy. We worked hard and pushed forward to pushing the work of party building and government integrity, green low-carbon, technological innovation, safety production, and promoting coordinated regional development to a new level, solidly promoting various work steadily forward with practical actions.

一年来，我们不断凝聚高质量发展的新动力。我们汇聚创新活力，培育企业新质生产力，加强关键核心技术攻关，开展前瞻性技术研究与成果转化，大力推进创新平台和示范建设，以通号科技支撑中国高铁跑得更稳、跑得更安全，全力打造可信赖的国家战略科技力量；我们汇聚绿色动能，坚决贯彻节能优先方针，把节能环保理念融入企业经营发展全过程、各环节，以绿色低碳转型发展作为着力点，落实企业碳达峰行动方案，加快节能低碳新技术、新工艺、新产品的示范和推广应用，全面建成社会主义现代化强国；我们汇聚全球智慧，积极响应“一带一路”倡议，充分发挥“设计研发、装备制造、工程施工”全产业链“三位一体”优势，持续完善全球业务布局，勇当践行国家“走出去”战略和“一带一路”倡议的骨干力量，为构建人类命运共同体作出新的贡献；我们汇聚民心民意，始终坚持“人民至上”，以通号技术助力杭州亚运会、成都大运会等国家级重要活动，围绕促进共同富裕，接续定点帮扶河南省社旗县，开展公益慈善，满足人民对美好出行的向往，全面展示中央企业的责任担当。

Over the past year, we have continuously gathered new momentum for high-quality development. We have pooled innovative vitality, nurtured new productive forces for the company, strengthened the research and development of key core technologies, conducted forward-looking technological research, and promoted the transformation of achievements. We have vigorously promoted the construction of innovative platforms and demonstrations, supported China's high-speed rail to run more steadily and safely with our technology, and strived to build a reliable national strategic scientific and technological force. We have gathered green energy, resolutely implemented the policy of giving priority to energy conservation, integrated the concept of energy conservation and environmental protection into the entire process and all links of enterprise operation and development. We have focused on green and low-carbon transformation, implemented corporate actions to peak carbon emissions, accelerated the demonstration and application of new energy-saving and low-carbon technologies, processes, and products, fully building a socialist modernized strong country. We have pooled global wisdom, actively responded to the Belt and Road Initiative, fully utilized the advantages of the whole industrial chain of design and development, equipment manufacturing, and engineering construction, and continuously improved our global business layout. We have bravely acted as the backbone force in implementing the national "going global" strategy and the Belt and Road Initiative, making new contributions to building a human community with a shared future. We have rallied public support, always adhering to the principle of "putting the people first". We have used our technology to support national-level events such as the 19th Asian Games Hangzhou and the Chengdu 2021 FISU World University Games, focused on promoting common prosperity, continued to provide targeted assistance to Sheqi County, Henan Province, conducted public welfare charity activities, and met the people's aspirations for better travel, comprehensively demonstrating our responsibility and commitment as a centrally administered state-owned enterprise.

2023 年是国资央企发展具有重要里程碑意义的一年，党中央研判当前宏观形势环境，把握历史发展大势，赋予国资央企在新时代新征程的新职责新使命，提出了国资央企发展的新任务新课题。

The year 2023 is of milestone significance for the development of state-owned central enterprises. The CPC Central Committee analyzed and assessed the current macroeconomic situation, grasped the historical development trend, and assigned new responsibilities and missions to state-owned central enterprises on the new journey in the new era. It put forward new tasks and challenges for the development of state-owned central enterprises.

展望 2024 年，我们看到，在“稳”和“进”的统筹下，经济稳中向好的基础进一步巩固，绿色低碳转型步伐进一步加快，现代化产业布局全面加速，科技革命将持续深入进行。面向未来，中国通号必须牢牢把握新时代新征程赋予的使命责任，服务构建新发展格局，坚持稳字当头、稳中求进，在转型升级中打开新空间、开辟新赛道，坚持高质量发展这个新时代的硬道理，积极投身国家交通建设，高站位谋划、高标准实施，为中国轨道交通事业的发展贡献通号力量。

Looking forward to 2024, we can see that under the coordinated strategy of "stability" and "progress", the foundation of a stable and positive economy will be further consolidated, the pace of green and low-carbon transformation will be accelerated, the layout of modern industries will be accelerated in an all-round way, and the technological revolution will continue to deepen. Looking ahead, CRSC must firmly grasp the missions and responsibilities given by the new era and the new journey, serving to build a new development pattern. It should prioritize stability while pursuing progress, opening up new opportunities and pathways in the process of transformation and upgrading. It should uphold high-quality development as the unyielding principle of the new era, actively participate in national transportation construction, develop forward-looking plans and adopt high standards, and contribute to the development of China's rail transit industry.

最后，我谨代表中国通号董事会及全体员工，向所有关心、支持和帮助中国通号发展的社会各界朋友和利益相关方致以最诚挚的感谢。并期待与您携手，共同打造中国通号社会利益与生态发展共赢共荣的发展新范式，创造公司更美好的未来！

Finally, on behalf of the board of directors and all employees of CRSC, I would like to extend my deepest gratitude to all friends and stakeholders from all walks of life who care about, support and help CRSC's development. We also look forward to collaborating with you to create a new paradigm of development for CRSC that achieves win-win outcomes for social benefits and ecological development. Let's work together to create a brighter future for the company!

# 关于我们 About Us

## 公司简介 Company Profile

中国通号是以轨道交通控制技术为特色的高科技产业服务商，是中国轨道交通控制系统行业的领导者、全球领先的轨道交通控制系统提供商。公司拥有集轨道交通控制系统设计研发、装备制造及工程安装于一体的完整产业链，是全国轨道交通电气设备与系统标准化技术委员会通信信号分技术委员会（国家标准）、铁路行业电气设备与系统标准化通信信号分技术委员会（行业标准）、中国铁道学会标准化委员会通信信号专委会（铁路团体标准）秘书处单位，负责归口管理通信信号领域国家标准、铁路行业标准和团体标准。

China Railway Signal & Communication Co., Ltd. (hereinafter referred to as CRSC) is a hi-tech service provider featured by railway signal and communication technology, the leader in China rail transit control industry, and an internationally leading rail transit system provider. The Company has a complete industrial chain that integrates the design, research and development of rail transit control systems, equipment manufacturing, and engineering installation. It is the secretariat unit of the Communication Signal Sub-Committee of the National Technical Committee on Electrical Equipment and Systems for Railways of Standardization Administration of China (national standard), the Technical Committee for Communication and Signal Standardization of Electric Equipment and Systems in the Railway Industry (industry standard), and the Communication and Signal Special Committee of the Standardization Committee of the China Railway Society (railway group standard), responsible for the centralized management of national standards, railway industry standards, and group standards in the field of communication and signal.

2015年8月7日，公司成功登陆香港联合交易所。2019年7月22日，公司在上海证券交易所科创板上市，成为登陆科创板的首家大型央企和A+H股的科创板上市公司（股票代码：688009.SH，03969.HK）。

On August 7, 2015, CRSC was successfully listed on HKEX. On July 22, 2019, CRSC was listed on STAR Market of Shanghai Stock Exchange (SSE), and became the first state-owned enterprise and the first A+H company on SSE STAR Market (stock code: 688009.SH, 03969.HK).



## 中国通号经济绩效（单位：亿元） CRSC Economic Performance (unit: 100 million yuan)

营业总收入  
Total operating income



净利润  
Net profit



资产总额  
Total assets



全年实现新签合同额  
Overall new contract amount in the year



## 发展战略 Development Strategy

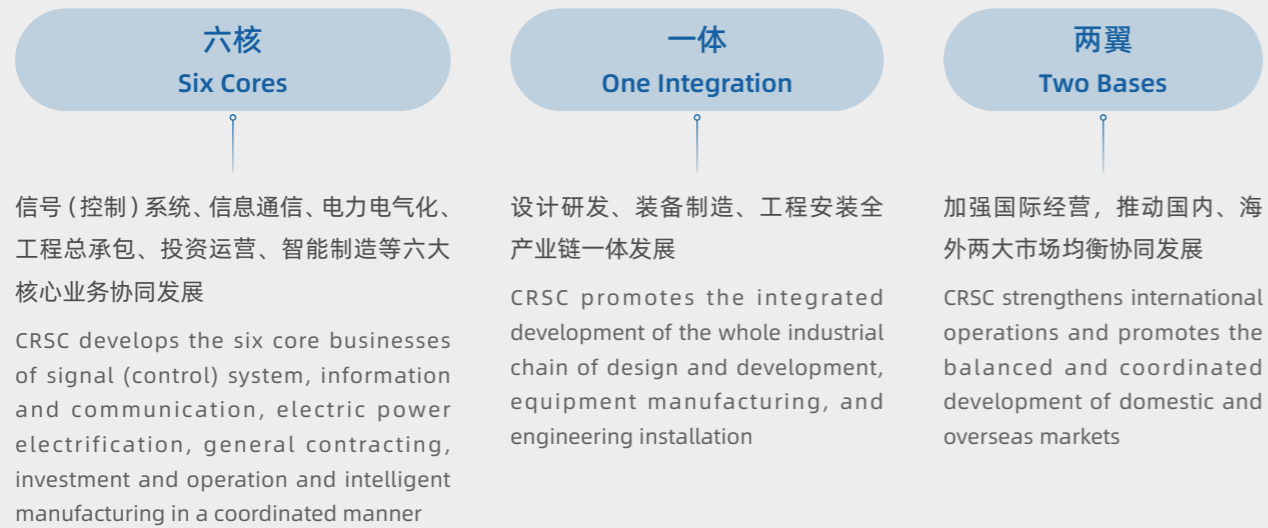
中国通号以“坚守主责、创新引领、突出主业、多元协同”为战略导向，实施“六核一体两翼”业务战略，构建“轨道交通+N”产业格局，建设以轨道交通为特色、系统技术全球领先、综合实力世界一流的产业集团。

CRSC takes “adhering to main responsibilities, leading innovation, highlighting main business, and diversifying synergy” as the strategic orientation, implements the business strategy of “Six Cores, One Integration and Two Bases”, creates a “rail transit + N” industrial pattern, and to build an industrial group with rail transit as its feature, global leading system technology and world-class comprehensive strength.

# 业务布局 Business Layout

中国通号以“六核一体两翼”赋能轨道交通产业，辐射壮大新兴产业，构建“轨道交通+N”产业协同发展格局。

CRSC empowers the rail transit industry with its business strategy (“Six Cores, One Integration and Two Bases”), expands emerging industries, and creates a coordinated development pattern of “rail transit + N”.



## 八大核心技术 Eight Core Technologies

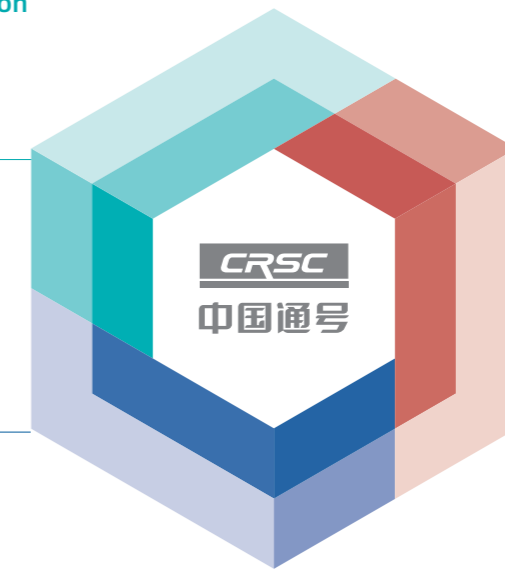
中国高铁列控系统 China's Train Control System for HSRs	城市轨道交通列控系统 Train Control System for Urban Transit	中低速磁悬浮控制系统 Train Control System for Medium and Low Speed Maglev	铁路综合智能运行维护管理系统 Integrated Intelligent Railway Operation Maintenance Management System
中国高铁自动驾驶系统 China's Automatic Train Operation System for HSRs	城际铁路列控系统 Train Control System for ICRs	货运编组站自动化系统 Automation System for Freight Marshalling	综合运输调度指挥系统 Integrated Transportation Dispatching & Commanding System

# 企业文化 Company Culture

发展国家列控技术民族产业，引领全球轨道交通技术进步，守护人们美好出行。

Develop the National Industry with Train Control Technology, Lead the Technological Progress of Global Rail Transit, Guard People's Beautiful Travel.

## 使命愿景 Mission and Vision



## 企业精神 Corporate Spirit

以人为本 创新求进 安全至上 共创价值  
People-Oriented, Innovation & Progress, Safety-First, Joint Value Creation

人是公司发展最大的资本。  
CRSC advocates people-first approach.

自主创新是公司发展的动力。  
Independent innovation is the momentum for CRSC's development.

质量安全的基石。  
Quality and safety are the cornerstones for CRSC's development.

创造价值是公司的矢志追求。  
Value creation is the eternal pursuit of CRSC.

## 核心价值观 Core Values

求实 创新 拼搏 奉献  
Realism, Innovation, Endeavor and Dedication

作风严谨，尊重科学，遵章守纪，追求实绩。  
Rigorous attitude and scientific spirit, Compliance with regulation, Pursuit of results.

开放合作，勇于攀登，精益求精，追求卓越。  
Openness and cooperation, Courage and efforts, Strive for perfection, Aspire for excellence.

泰而不骄，败而不馁，敢打硬仗，无私无畏。  
Poised but not arrogant, Failed but not discouraged, Selfless and fearless.

恪尽职守，敢于担当，励精图治，产业报国。  
Devoted and responsible, Ambitious and serve the country.

# 2023 年度 ESG 荣誉展示

## 2023 ESG Honor Exhibition

奖项及认可 Awards and Recognition	获授机构 Awarded Institution	颁发机构 Awarding Institution	获奖时间 Award Time
<ul style="list-style-type: none"> <li>中国铁道学会科学技术奖一等奖 4 项、二等奖 2 项、三等奖 9 项 China Railway Society Science and Technology Award: 4 first prizes, 2 second prizes, and 9 third prizes</li> <li>研究设计院集团 CRSC Research &amp; Design Institute Group</li> <li>卡斯柯 Casco Company</li> <li>西安工业集团 (Xi'an) Industry Group</li> <li>上海工程局集团 CRSC Shanghai Engineering Group</li> <li>中国铁道学会 China Railway Society</li> <li>2023 年 2 月 February 2023</li> </ul>	<ul style="list-style-type: none"> <li>中国标准创新贡献奖标准项目三等奖 Third Prize of China Standard Innovation Contribution Award - Standard Project</li> <li>研究设计院集团 CRSC Research &amp; Design Institute Group</li> <li>国家市场监督管理总局、国家标准化管理委员会 State Administration for Market Regulation, Standardization Administration of China</li> <li>2023 年 4 月 April 2023</li> </ul>	<ul style="list-style-type: none"> <li>中国交通运输协会科技进步奖一等奖 7 项、二等奖 3 项 China Communications and Transportation Association Science and Technology Progress Award: 7 first prizes, and 3 second prizes</li> <li>研究设计院集团 CRSC Research &amp; Design Institute Group</li> <li>卡斯柯 Casco Company</li> <li>中国交通运输协会 China Communications and Transportation Association</li> <li>2023 年 5 月 May 2023</li> </ul>	
<ul style="list-style-type: none"> <li>第十四届上海产学研合作优秀项目特等奖 Special Prize of the 14th Shanghai Industry-University-Research Collaboration Excellent Project</li> <li>卡斯柯 Casco Company</li> <li>上海市政协 Shanghai Municipal Committee of the Chinese People's Political Consultative Conference (CPPCC)</li> <li>2023 年 3 月 March 2023</li> </ul>	<ul style="list-style-type: none"> <li>首届国企数字场景创新专业赛数字场景创建生产运营类三等奖 3 项、产业协同类三等奖 1 项 First Professional Competition for Innovation in Digital Scenarios of State-owned Enterprises: 3 third prizes for digital scenario creation, production and operation, and 1 third prize for industrial cooperation.</li> <li>研究设计院集团 CRSC Research &amp; Design Institute Group</li> <li>卡斯柯 Casco Company</li> <li>西安工业集团 (Xi'an) Industry Group</li> <li>国务院国资委科技创新局 Bureau of Scientific and Technological Innovation of SASAC of the State Council</li> <li>2023 年 5 月 May 2023</li> </ul>	<ul style="list-style-type: none"> <li>“上市公司 ESG 先锋 100” 指数第 23 位 Ranked 23rd in the ESG Pioneer 100 Index of Listed Companies</li> <li>中国铁路通信信号股份有限公司 China Railway Signal &amp; Communication Co., Ltd.</li> <li>中央广播电视总台财经节目中心 Financial Program Center of China Media Group</li> <li>2023 年 6 月 June 2023</li> </ul>	<ul style="list-style-type: none"> <li>第二十四届中国专利奖银奖 2 项 The 24th China Patent Award: 2 silver awards</li> <li>研究设计院集团 CRSC Research &amp; Design Institute Group</li> <li>卡斯柯 Casco Company</li> <li>国家知识产权局 China National Intellectual Property Administration</li> <li>2023 年 7 月 July 2023</li> </ul>

奖项及认可 Awards and Recognition	获授机构 Awarded Institution	颁发机构 Awarding Institution	获奖时间 Award Time
<ul style="list-style-type: none"> <li>● 中国安装协会科学技术进步奖一等奖 First Prize of the China Association of Installation Science and Technology Progress Award</li> <li>● 上海工程局集团 CRSC Shanghai Engineering Group</li> <li>● 中国安装协会 China Association of Installation</li> <li>● 2023 年 8 月 August 2023</li> </ul>	<ul style="list-style-type: none"> <li>● 国家工信部 2023 年度智能制造优秀场景 2 项 Two excellent smart manufacturing scenarios in 2023 selected by the Ministry of Industry and Information Technology</li> <li>● 西安工业集团 (Xi'an) Industry Group</li> <li>● 中华人民共和国工业和信息化部 Ministry of Industry and Information Technology of the People's Republic of China</li> <li>● 2023 年 10 月 October 2023</li> </ul>	<ul style="list-style-type: none"> <li>● 第 48 届国际质量管理小组会议 (ICQCC) 金奖 Gold Award at the 48th International Convention on Quality Control Circles (ICQCC)</li> <li>● 上海工程局集团和西安工业集团联合组成的“融合贯通”QC 小组 The “Integrated Penetration” QC Circle formed by CRSC Shanghai Engineering Group Co., Ltd. and (Xi'an) Industry Group</li> <li>● 中国质量协会 China Association for Quality</li> <li>● 2023 年 11 月 November 2023</li> </ul>	<ul style="list-style-type: none"> <li>● 北京市科学技术进步奖一等奖 First Prize of the Beijing Science and Technology Progress Award</li> <li>● 研究设计院集团 Research &amp; Design Institute Group</li> <li>● 北京市政府 Beijing Municipal Government</li> <li>● 2023 年 12 月 December 2023</li> </ul>
<ul style="list-style-type: none"> <li>● “央企 ESG·先锋 100” 指数第六位，运输设备制造行业第一位 Ranked sixth in the ESG Pioneer 100 Index of Central Enterprises, and first in the transportation equipment manufacturing industry</li> <li>● 中国铁路通信信号股份有限公司 China Railway Signal &amp; Communication Co., Ltd.</li> <li>● 国务院国资委 SASAC of the State Council</li> <li>● 2023 年 10 月 October 2023</li> </ul>	<ul style="list-style-type: none"> <li>● 第六届“绽放杯”5G+ 先进制造专题赛二等奖 1 项 The 6th “Blooming Cup” 5G+ Advanced Manufacturing Special Competition: 1 second prize</li> <li>● 西安工业集团 (Xi'an) Industry Group</li> <li>● 中华人民共和国工业和信息化部 Ministry of Industry and Information Technology of the People's Republic of China</li> <li>● 2023 年 10 月 October 2023</li> </ul>	<ul style="list-style-type: none"> <li>● 第五届国家网络与信息安全信息通报机制中央企业网络安全大赛综合解决方案优秀奖 Excellent Award for the Comprehensive Solution of the 5th National Network and Information Security Information Reporting Mechanism Central Enterprise Network Security Competition</li> <li>● 通信信息集团 CRSC Information &amp; Communication Group Company Ltd.</li> <li>● 公安部、国务院国资委、国家网络与信息安全信息通报中心 Ministry of Public Security, State-owned Assets Supervision and Administration Commission of the State Council, and National Network and Information Security Information Reporting Center</li> <li>● 2023 年 12 月 December 2023</li> </ul>	<ul style="list-style-type: none"> <li>● 第四届安全科技进步奖三等奖 3 项 The 4th Safety Science and Technology Progress Award: 3 third prizes</li> <li>● 通信信息集团 CRSC Information &amp; Communication Group Company Ltd.</li> <li>● 中国安全生产协会 China Association of Work Safety</li> <li>● 2023 年 12 月 December 2023</li> </ul>



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Better Products and Services

# 上篇 Part 1

## 臻于至善 打造更智慧的通号 Attaining Excellence: Building a Smarter CRSC



可持续发展是构建 ESG 生态的重要追求。中国通号持续完善 ESG 顶层设计，追求更高效治理模式，不断完善公司治理机制，牢牢抓住科技创新和产品服务两大“牛鼻子”，激活公司高质量、智能化、可持续发展的“一池春水”。

Sustainable development is an important pursuit in building the ESG ecosystem. CRSC continuously improves its ESG top-level design, pursues a more efficient governance model, constantly enhances its corporate governance mechanism, and firmly grasps the two key drivers of technological innovation and product and service, injecting new impetus for the company's high-quality, intelligent, and sustainable development.



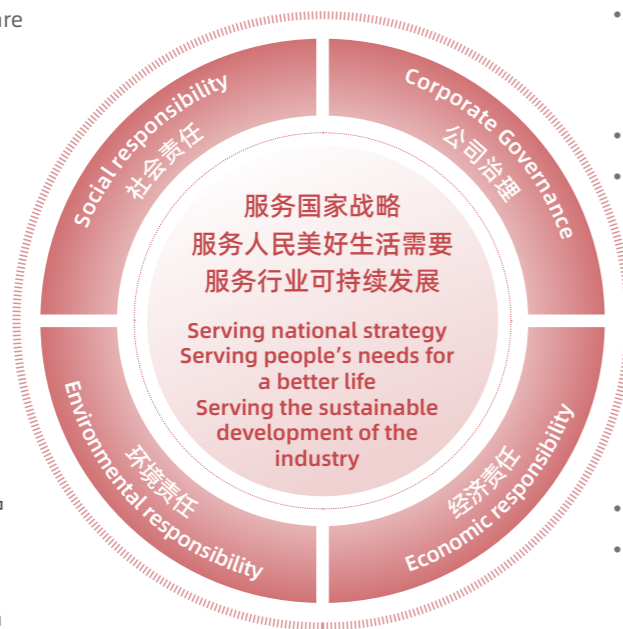
## 更可持续的理念 More Sustainable Concept

### 可持续发展理念 Sustainability Concept

中国通号积极践行可持续发展理念，将“发展国家列控技术民族产业，引领全球轨道交通技术进步，守护人们美好出行”的使命愿景，融入企业战略发展和日常运营中，持续深化责任意识，坚定服务国家战略、服务人民美好生活需要、服务行业可持续发展，携手各利益相关方和谐共赢，努力促进经济、社会和环境的可持续发展。

CRSC actively practices the concept of sustainable development, integrating the mission and vision of “developing the national industry with train control technology, leading the technological progress of global rail transit and guarding people’s beautiful travel” into its strategic development and daily operation. It continuously deepens the sense of responsibility, firmly serves the national strategy, the people’s needs for a better life, and the sustainable development of the industry, works together with all stakeholders to achieve harmony and win-win results, and strive to promote the sustainable development of the economy, society, and environment.

- 参与社会公益事业
- Participate in social welfare undertakings
- 维护职工合法权益
- Safeguard the rights and interests of employees
- 保障生产安全
- Ensure production safety



- 坚持依法经营
- Insist on operating in accordance with the law and be honest and trustworthy
- 不断提高盈利能力
- Continuously improve profitability

- 加强资源节约和环境保护
- Strengthen resource conservation and environmental protection

- 切实提高产品质量和服务水平
- Effectively improve product quality and service level
- 推进自主创新和技术进步
- Promote independent innovation and technological progress

## 可持续发展管治 Sustainability Governance

### 董事会声明

#### Statement of the Board of Directors

中国通号董事会深信，良好的 ESG 表现对公司的未来发展至关重要。中国通号充分发挥董事会在 ESG 治理中职责和作用，将董事会作为公司 ESG 工作的最高决策机构，全面承担公司 ESG 事务的责任，负责确定公司 ESG 整体策略并了解相关风险，监督及审阅公司 ESG 重要议题识别与评估结果，持续审视 ESG 重要议题的相关表现，对公司 ESG 报告的终稿进行审阅及确认。

The board of directors of CRSC firmly believes that good ESG performance is crucial for the future development of the Company. CRSC gives full play to the responsibilities and roles of the board of directors in ESG governance, positioning the board as the highest decision-making body for the Company’s ESG work. The board takes full responsibility for the Company’s ESG affairs. It is responsible for determining the overall ESG strategy and understanding related risks, supervising and reviewing the identification and assessment results of key ESG issues, continuously monitoring the performance of these issues, and reviewing and confirming the final draft of the Company’s ESG report.

报告期内，公司结合 ESG 风险识别、宏观政策与热点、利益相关方沟通等有效举措，夯实 ESG 管理基础，建立“各业务部门分工配合、所属单位全面参与”的 ESG 工作机制，推动 ESG 治理与企业经营管理的有机结合。

During the reporting period, the Company consolidated the foundation of ESG management by combining effective measures such as ESG risk identification, macro policies and hot spots, and stakeholder communication. It established an ESG work mechanism of “division of labor and cooperation among various business departments, full participation of subsidiaries”, promoting the organic integration of ESG governance and corporate management.

### 可持续发展管治架构 Sustainability Development Governance Structure

中国通号将 ESG 纳入发展战略规划，构建自上而下的 ESG 治理架构和执行体系，明确各级机构的 ESG 管理职责，充分发挥 ESG 治理的牵引作用，持续提升可持续发展能力。

CRSC incorporates ESG into its development strategic planning, establishes a top-down ESG governance framework and execution system, and clarifies the ESG management responsibilities of various levels of institutions, giving full play to the leading role of ESG governance, and continuously enhancing its sustainable development capability.

<p><b>决策与管理层</b> Decision-making and Management</p>	<p><b>董事会</b> Board of Directors</p>	<p>董事会是公司 ESG 治理的最高决策机构，负责 ESG 事宜的整体规划及工作统筹。</p> <p>The board of directors is the highest decision-making body for ESG governance in the Company, responsible for the overall planning and coordination of ESG matters.</p>
<p><b>执行层</b> Execution Level</p>	<p><b>总部部门及所属企业</b> HQ Departments and Affiliated Enterprises</p>	<p>负责在各自工作范围内开展全面的 ESG 实践。</p> <p>Responsible for conducting comprehensive ESG practices within their respective scope of work.</p>

# 利益相关方沟通 Stakeholder Communication

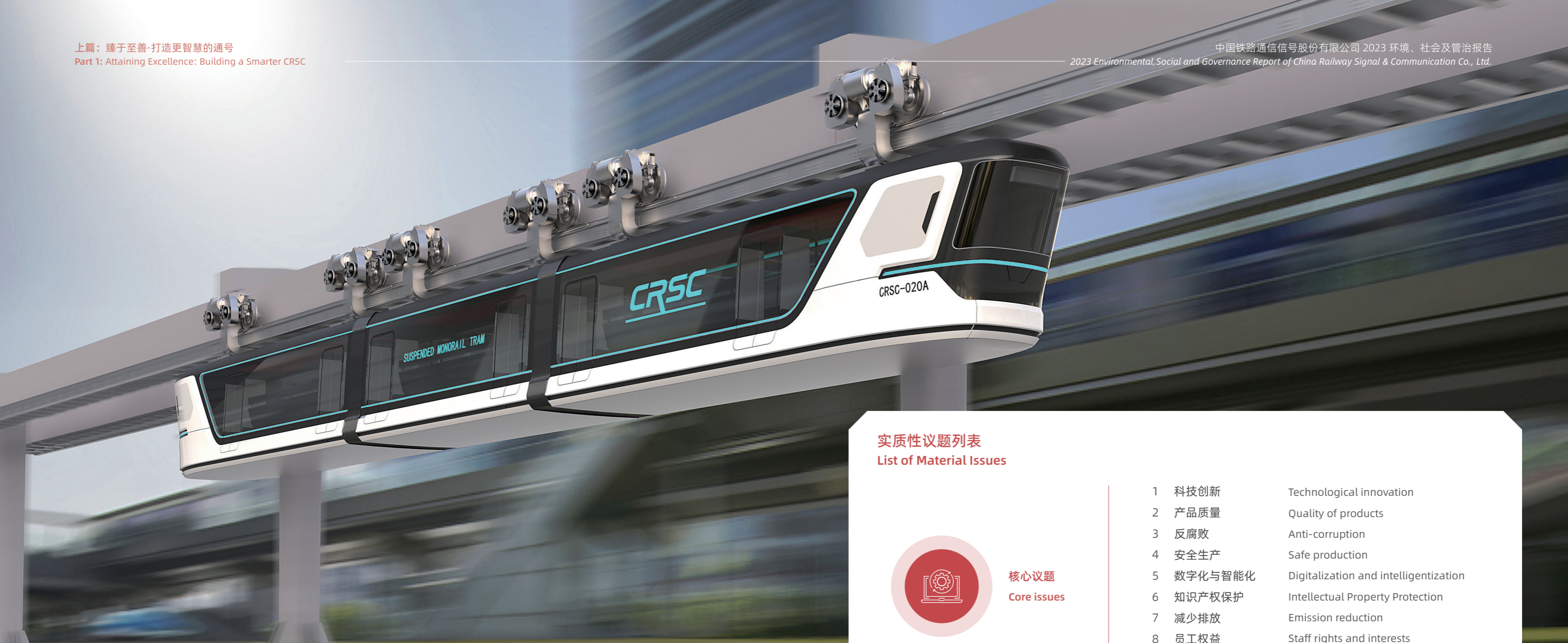
中国通号持续畅通沟通交流渠道，以了解利益相关方对环境、社会及管治相关议题的意见。积极主动向利益相关方传播公司可持续发展理念及 ESG 履责动态，提高披露透明度。

CRSC continuously smooths communication channels to understand stakeholders' opinions on environment, society, and governance-related issues. It proactively communicates its sustainable development concept and ESG responsibility performance dynamics to stakeholders, and enhances disclosure transparency.

公司识别并确定政府与监管机构、股东与投资者、客户、员工、供应商与合作伙伴、行业协会、社区及公众等主要利益相关方，通过日常沟通和专项沟通等多种渠道，了解利益相关方的期望与诉求，从而提升企业可持续发展的能力，助力高质量发展。

The Company identifies and determines the main stakeholders, including government and regulatory agencies, shareholders and investors, customers, employees, suppliers and partners, industry associations, community, and the public. Through various channels such as daily communication and specific communication, the company understands the expectations and demands of stakeholders, thereby enhancing the ability of sustainable development and supporting high-quality development.

利益相关方类型 Stakeholders							
	政府机构 Government	股东与投资者 Shareholders and investors	客户 Clients	员工 Employees	供应商与合作伙伴 Suppliers and partners	行业协会 Industry associations	社区与公众 Community
期望与诉求 Expectations and Appeals	<ul style="list-style-type: none"> <li>贯彻宏观政策</li> <li>诚信守法经营</li> <li>依法纳税</li> <li>促进就业</li> <li>带动地方经济发展</li> </ul> <ul style="list-style-type: none"> <li>To implement macro policies</li> <li>To operate honestly and legally</li> <li>To pay taxes according to law</li> <li>To promote employment</li> <li>To drive local economic development</li> </ul>	<ul style="list-style-type: none"> <li>良好的经营业绩</li> <li>资产保值增值</li> <li>信息合规披露</li> <li>降低经营风险</li> <li>股东权益保护</li> </ul> <ul style="list-style-type: none"> <li>Good operation performance</li> <li>Asset preservation and appreciation</li> <li>To disclose information</li> <li>To reduce operation risks</li> <li>To protect the interests of shareholders and investors</li> </ul>	<ul style="list-style-type: none"> <li>合同履行</li> <li>产品质量安全</li> <li>提供优质服务</li> <li>保障客户隐私</li> </ul> <ul style="list-style-type: none"> <li>To perform contracts</li> <li>To guarantee product quality and safety</li> <li>To offer premium service</li> <li>To protect clients' information</li> </ul>	<ul style="list-style-type: none"> <li>保障员工权益</li> <li>保障职业发展</li> <li>员工生活关怀</li> <li>保障薪酬福利</li> <li>加强海外员工管理</li> </ul> <ul style="list-style-type: none"> <li>To protect staff interests</li> <li>To promote occupational development</li> <li>To offer staff caring</li> <li>To offer rational salary and welfare</li> <li>To enhance the management of overseas staff</li> </ul>	<ul style="list-style-type: none"> <li>诚信守法</li> <li>阳光采购</li> <li>扶持供应商成长</li> <li>信息保密</li> </ul> <ul style="list-style-type: none"> <li>Integrity and law-abiding</li> <li>To guarantee open, fair and legal procurement</li> <li>To achieve win-win cooperation</li> <li>To keep information confidential</li> </ul>	<ul style="list-style-type: none"> <li>公平竞争</li> <li>科技创新研发</li> <li>助力行业进步</li> </ul> <ul style="list-style-type: none"> <li>Fair competition</li> <li>Technology innovation research</li> <li>To promote the industrial development</li> </ul>	<ul style="list-style-type: none"> <li>参与社区建设</li> <li>社会公益服务</li> </ul> <ul style="list-style-type: none"> <li>To take part in community construction</li> <li>To conduct public welfare activities</li> </ul>
沟通方式 Communication Channels	<ul style="list-style-type: none"> <li>工作汇报</li> <li>参加会议</li> <li>监督检查</li> <li>信息报送</li> </ul> <ul style="list-style-type: none"> <li>Work report</li> <li>Conferences</li> <li>Supervision and inspection</li> <li>Information reporting</li> </ul>	<ul style="list-style-type: none"> <li>企业定期报告及公告</li> <li>业绩发布会</li> <li>股东大会</li> <li>投资者见面会</li> <li>沟通汇报</li> </ul> <ul style="list-style-type: none"> <li>Corporate annual report, middle term report and announcements</li> <li>Performance conference</li> <li>General meeting of shareholders</li> <li>Investors conference</li> <li>Reporting and communication</li> </ul>	<ul style="list-style-type: none"> <li>客户拜访</li> <li>客户满意度调查</li> <li>电话、邮件、信件及在线反馈</li> </ul> <ul style="list-style-type: none"> <li>Customer visit</li> <li>Customer satisfaction survey</li> <li>Telephone, e-mail, letter, and on-line feedback</li> </ul>	<ul style="list-style-type: none"> <li>职工代表大会</li> <li>员工培训宣教</li> <li>日常沟通</li> </ul> <ul style="list-style-type: none"> <li>General meeting of staff representatives</li> <li>Staff training and education</li> <li>Daily communication</li> </ul>	<ul style="list-style-type: none"> <li>公开招标</li> <li>开展合作</li> <li>行业沟通与交流</li> <li>高层互访</li> </ul> <ul style="list-style-type: none"> <li>Open tendering</li> <li>Carrying out cooperation</li> <li>Industrial communication and exchanges</li> <li>High-level visit exchanges</li> </ul>	<ul style="list-style-type: none"> <li>加强同业交流</li> <li>参加行业论坛</li> <li>考察互访</li> </ul> <ul style="list-style-type: none"> <li>Enhancing communication with peers</li> <li>Participating in industry forums</li> <li>Research tours and exchange visits</li> </ul>	<ul style="list-style-type: none"> <li>社区沟通宣传</li> <li>开展公益活动</li> </ul> <ul style="list-style-type: none"> <li>Community communication and publicity</li> <li>Organizing public welfare activities</li> </ul>

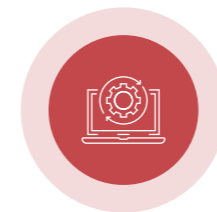


## 实质性议题识别 Identification of Material Issues

中国通号紧跟国内外宏观政策导向和 ESG 发展趋势，参考 ESG 相关指南重要议题准则，对标国内外优秀企业，结合公司发展战略、利益相关方关注议题、ESG 专家建议，确定对自身可持续发展影响重大、利益相关方普遍关注的重要议题。对识别结果进行排序，并按照结果选择年度 ESG 报告的披露内容。

CRSC closely follows the orientations of macro policies at home and abroad and the trend of ESG development, refers to ESG-related guidelines on important issues, and benchmarks excellent enterprises at home and abroad, combines the company's development strategy, stakeholders' concerns and ESG expert advice to determine important issues that have a significant impact on its sustainable development and are widely concerned by stakeholders. It sorts the identification results and selects the disclosure content of the annual ESG report according to the results.

### 实质性议题列表 List of Material Issues



#### 核心议题 Core issues

- |           |                                       |
|-----------|---------------------------------------|
| 1 科技创新    | Technological innovation              |
| 2 产品质量    | Quality of products                   |
| 3 反腐败     | Anti-corruption                       |
| 4 安全生产    | Safe production                       |
| 5 数字化与智能化 | Digitalization and intelligentization |
| 6 知识产权保护  | Intellectual Property Protection      |
| 7 减少排放    | Emission reduction                    |
| 8 员工权益    | Staff rights and interests            |
| 9 合规运营    | Compliant Operations                  |
| 10 公司治理   | Corporate Governance                  |



#### 重要议题 Important issues

- |            |                                      |
|------------|--------------------------------------|
| 11 可持续供应链  | Sustainable supply chain             |
| 12 优质服务    | Quality service                      |
| 13 生态保护    | Ecological conservation              |
| 14 员工培训与发展 | Staff training and development       |
| 15 海外履责    | Performing overseas responsibilities |



#### 一般议题 General issues

- |           |                          |
|-----------|--------------------------|
| 16 应对气候变化 | Tackling climate changes |
| 17 公平采购   | Fair procurement         |
| 18 社区建设   | Community construction   |

## 更高效的治理 More Efficient Governance

### 规范公司治理 Standardizing Corporate Governance

中国通号严格遵守《中华人民共和国公司法》《中华人民共和国证券法》《香港联合交易所有限公司证券上市规则》《上海证券交易所科创板股票上市规则》《上市公司章程指引》以及其他有关规定，结合公司发展实际，制修订《公司章程》等治理文件，不断完善公司治理体系，有效提升上市公司的企业管治水平。

CRSC strictly abides by the *Company Law of the People's Republic of China*, the *Securities Law of the People's Republic of China*, the *Rules Governing the Listing of Securities on the Stock Exchange of Hong Kong Limited*, the *Rules Governing the Listing of Stocks on the STAR Market of the Shanghai Stock Exchange*, the *Guidelines for Articles of Association of Listed Companies*, and other related regulations. In combination with the actual development of the Company, it has formulated and revised the Articles of Association and other governance documents, continuously improved the corporate governance system, and effectively enhanced the corporate governance level of listed companies.

### 董事会建设 Board Construction

董事会是公司的决策机构，对股东大会负责。公司董事会由 5 名董事构成，包含 2 名执行董事和 3 名独立非执行董事，独立董事占比 60%。董事的选聘和构成符合有关法律法规和《公司章程》的规定。现任董事会成员来自境内外不同行业，具有丰富的工作经验，专业领域覆盖机械工程、电子与信息工程、经济管理、工商管理、会计等，有利于董事会科学决策。

The board of directors is the decision-making body of the Company and is accountable to the shareholders' general meeting. The board of directors of the Company consists of five directors, including two executive directors and three independent non-executive directors, with independent directors accounting for 60%. The selection and composition of directors comply with relevant laws and regulations and the Articles of Association. The current members of the board of directors come from different industries at home and abroad, with rich work experience, covering professional fields such as mechanical engineering, electronics and information engineering, economic management, business administration, and accounting, which is conducive to scientific decision-making of the board of directors.

公司在《公司章程》中规定独立董事的任职条件，并要求独立董事在董事会中占比不少于三分之一，且同时满足不少于三名成员的条件。独立董事认真履行职责，公正客观地发表独立意见，为公司发展建言献策，维护公司整体利益，重点关注公司关联交易、对外担保、募集资金使用、并购重组、重大投融资活动、高管薪酬和利润分配等与中小股东利益密切相关的事项。每年与年报共同发布《独立董事履职情况报告》，充分披露独立董事年度工作绩效。

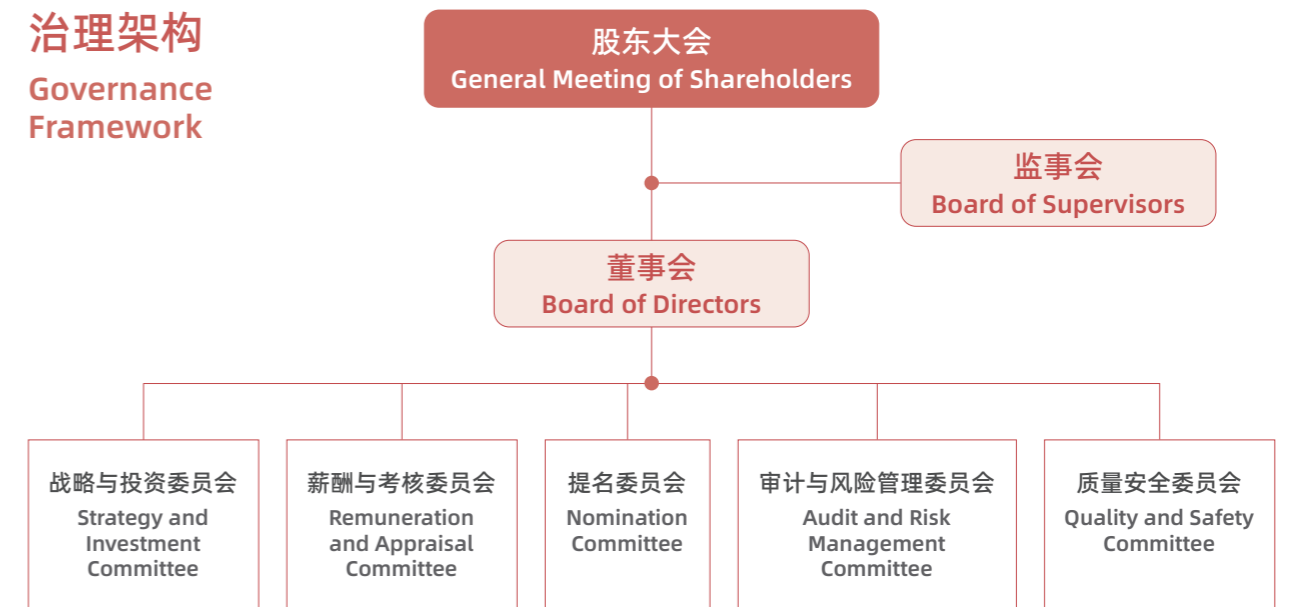
In the Articles of Association, the Company stipulates the qualifications for appointment of independent directors, and requires that independent directors account for no less than one-third of the board of directors, and also meet the

requirement of no less than three members. Independent directors shall fulfill their responsibilities diligently, express independent opinions fairly and objectively, provide suggestions and advice for company development, safeguard the overall interests of the Company, and focus on matters closely related to the interests of minority shareholders, such as related transactions, external guarantees, use of raised funds, mergers and acquisitions and reorganizations, major investment and financing activities, executive compensation, and profit distribution. Every year, together with the annual report, the Report on the Performance of Independent Directors is released, fully disclosing the annual work performance of independent directors.

报告期内，公司董事会召开会议 6 次，审议通过议案 32 项。董事会下设专门委员会召开会议 9 次，审议议案 19 项，听取报告 3 项。有关会议情况均以公告形式刊载于交易所及公司网站。

During the reporting period, the Company's board of directors held 6 meetings and deliberated and approved 32 proposals. The special committees of the board of directors held 9 meetings, deliberated and approved 19 proposals and reviewed 3 reports. Meeting information was published in the form of announcements on the websites of the stock exchanges and the Company.

### 治理架构 Governance Framework



### 信息披露 Information Disclosure

中国通号严格按照有关法律法规的要求，制定并严格执行《信息披露合规专项指引（A 股）》《信息披露合规专项指引（H 股）》，确保信息披露真实、准确、完整、及时、公平。公司在上海证券交易所 2022-2023 年度信息披露工作评价结果为 A。

In strict accordance with relevant laws and regulations, CRSC has formulated and strictly implemented the Special Guidelines on Information Disclosure Compliance (A-share) and the Special Guidelines on Information Disclosure Compliance (H-share) to ensure that information disclosure is true, accurate, complete, timely, and fair. The Company received an A rating in the evaluation of its information disclosure work for the 2022-2023 fiscal year at the Shanghai Stock Exchange.

## 依法合规治企 Law-based and Compliance Corporate Governance

中国通号始终坚持“合规从高层做起、全员主动合规、合规创造价值”的合规理念，着力构建高层人员引领合规、全体员工践行合规的价值体系，持续强化法律、合规、风险、内控、制度管理“五位一体”协同运行，健全大监督体系，为公司改革发展提供坚实法律保障。

CRSC always adheres to the philosophy of “compliance by the top management, practice in compliance by all staff, and creating value in full compliance”, and strives to build a value system where the top management leads compliance and all staff practice compliance. It continuously strengthens the coordinated operation of law, compliance, risk, internal control, and system management, and improves the overall supervision system to provide a solid legal guarantee for the Company’s reform and development.

### 中国通号 2023 年度合规管理重点措施 Key Measures for Compliance Management of CRSC in 2023

#### 完善合规管理制度 Improving compliance management system

结合经营需求，丰富合规管理制度内容，编制完成业务岗位合规职责清单，制定发布《2023 年中国通号法治合规工作要点》，明确 9 个方面 28 项重点工作要求。

In accordance with business needs, CRSC enriched the content of the compliance management system, compiled the list of compliance responsibilities of business positions, and formulated and released the Key Points of Legal Compliance Work of CRSC in 2023, clarifying 28 key work requirements in 9 aspects.

#### 夯实合规管理组织体系 Solidifying compliance management organizational system

设立公司首席合规官，深度参与重大合同、重要决策的审核把关，牵头组织合规管理制度建设、合规体系有效性运行评估等各项工作。

CRSC set a chief compliance officer who is deeply involved in the review and oversight of major contracts and important decisions, and took the lead in organizing the construction of compliance management system and the evaluation of the effectiveness of compliance system.

公司党委、董事会、经理层、首席合规官、合规管理牵头部门及各业务部门分工协作，共同参与合规管理工作。

CRSC’s Party Committee, the board of directors, the management, the chief compliance officer, the leading department of compliance management, and various business departments worked together to participate in compliance management work.

在所属各企业持续推进公司首席合规官设立工作，共 12 家子企业配备到位。

CRSC continued to promote the establishment of chief compliance officer in its subsidiaries, with a total of 12 subsidiaries fully staffed.

### 中国通号合规经营绩效 CRSC Compliance Management Performance

指标 Indicator	单位 Unit	2021 年 2021	2022 年 2022	2023 年 2023
法律审核率（企业规章制度、经济合同、重大决策的法律审核） Legal review rate (legal review of enterprise’s rules and regulations, economic contracts and major decisions)	%	100	100	100
经济合同履约率 Performance rate of economic contract	%	100	100	100
守法规培训场次 Legal compliance training sessions	场 Piece	113	87	106
守法规培训人次 Number of participants in legal compliance training	人次 Person-time	12,048	9,152	8,164

#### 运用合规有效性评价 Using compliance effectiveness evaluation

通过企业自评价、现场评价检查等方式，发现合规工作中的问题和不足，通过立行立改和持续整改等方式，不断增强合规管理体系运行有效性。

By conducting self-evaluation and on-site evaluation and inspection, CRSC discovered issues and deficiencies in compliance work, and continuously enhanced the operational effectiveness of the compliance management system through immediate action and rectification and continuous improvement.

完成全部所属企业合规自评。

CRSC completed the compliance self-evaluation of all subsidiaries.

#### 培育法治合规文化 Cultivating a culture of legal compliance

将守法规培训作为培育合规文化的重要举措，常态化开展守法规培训。

CRSC made legal compliance training a key initiative in cultivating a culture of compliance, and conducted regular compliance training.

开展宪法宣传周活动、涉外业务合规和风险防控专题培训。

CRSC conducted Constitution Publicity Week, and special training on foreign-related business compliance and risk prevention and control.

## 全面风险管理 Comprehensive Risk Management

中国通号重视管理公司发展过程中的各项风险，制定和完善风险管理和内部控制体系，有效提升全体员工风险防控意识，为公司高质量发展提供有力保障。

CRSC attaches great importance to the management of various risks in the development process of the Company, formulates and improves the risk management and internal control system, effectively enhances the risk prevention and control awareness of all employees, and provides a strong guarantee for the high-quality development of the Company.

### 风险防控

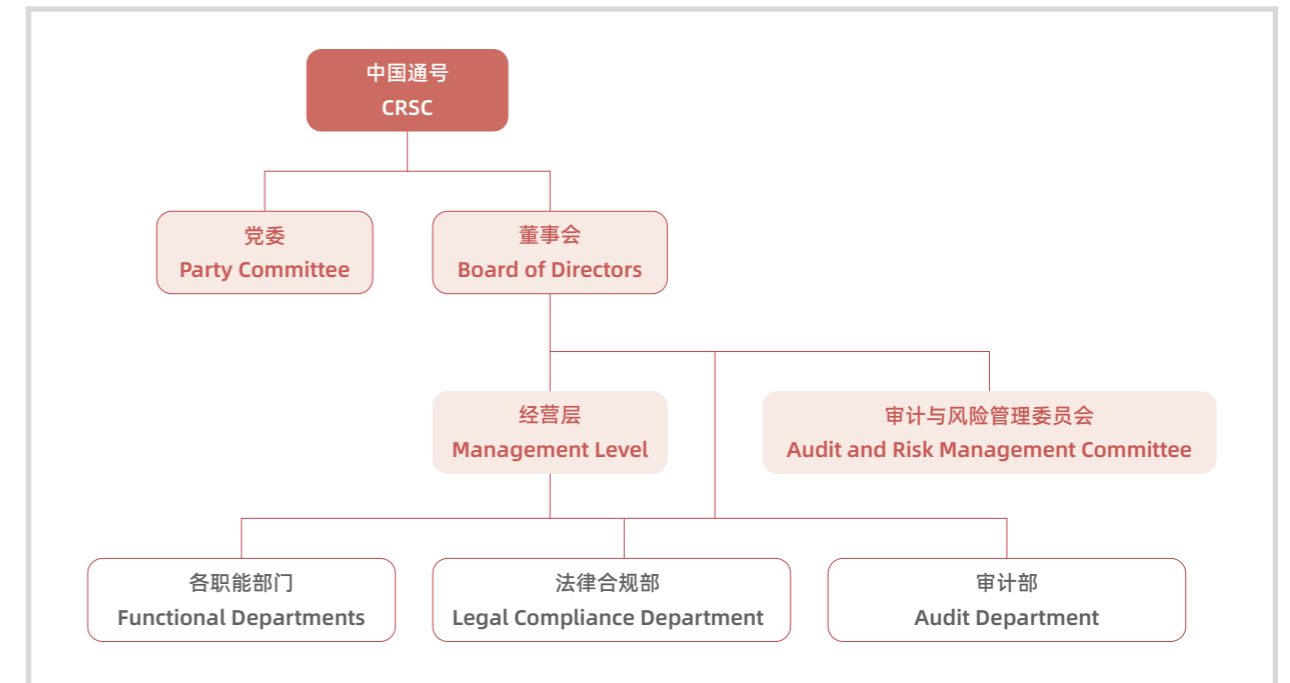
#### Risk Prevention and Control

中国通号遵循风险分级管理、分类管理和集中管理的原则，建立全面风险管理组织体系，确保各主体充分履行风险防控职责。持续夯实风险管理，强化公司及各子企业风险管理关键节点，建立重大风险监测、重大风险评估、重大风险事件处置和定期汇报机制。

CRSC follows the principles of hierarchical, classified and centralized risk management, and has established a comprehensive risk management organizational system, ensuring that all entities fully fulfill their risk prevention and control responsibilities. It continues to solidify risk management, strengthens key nodes of risk management for the Company and its subsidiaries, establishes major risk monitoring, major risk assessment, major risk event disposal and regular reporting mechanisms.

报告期内，公司专项设置差异化风险监测指标，编制四个季度的重大风险季度监测报告，完成《2023 年度重大风险评估报告》，建立公司各子企业 2023 年度重大风险防控责任台账并跟踪督导。

During the reporting period, the Company specially set differentiated risk monitoring indicators, prepared four quarterly major risk monitoring reports, completed the 2023 Major Risk Assessment Report, established a responsibility ledger for major risk prevention and control for each subsidiary in the Company for 2023, and tracked and supervised it.



中国通号风险管理组织架构  
CRSC Risk Management Organizational Structure

### 内控管理

#### Internal Control Management

##### 制度建设 System construction

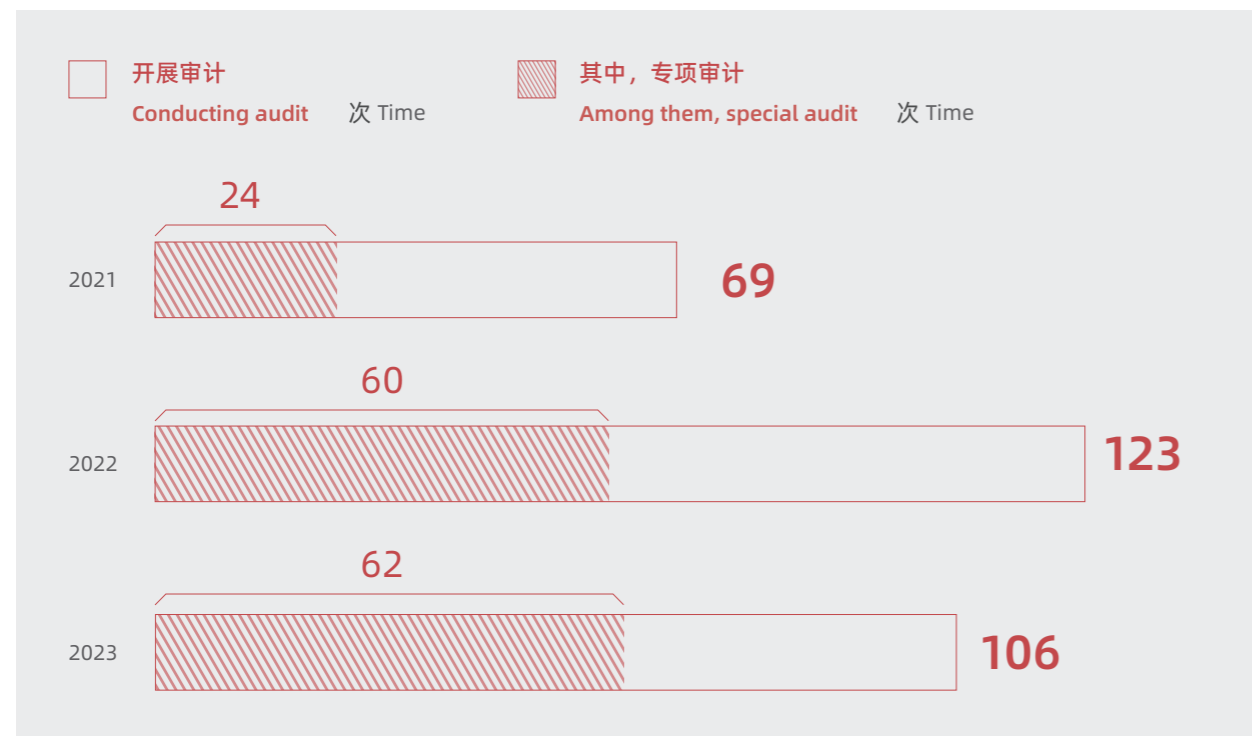
- 持续夯实制度基础，完善重点业务领域制度建设，提升审计专业化水平。  
Continue to consolidate the institutional foundation, improve the institutional construction of key business areas, and enhance the professional level of auditing.
- 完善《内部审计管理办法》《内部控制评价管理办法》等基本制度，建立《审计查出问题整改管理办法》《违规经营投资责任追究工作指引》等具体制度，细化工作规范。  
Improve the basic systems such as the Measures for the Management of Internal Audit and the Measures for the Management of Internal Control Evaluation, establish specific systems such as the Measures for the Management of Rectification of Problems Found in Audit and the Guidelines on Accountability for Operation and Investment Irregularities, and refine work standards.
- 编制下发《内部审计及内控监督工作要点》，围绕重大政策制定、改革重点及采购、投资等重点业务加大审计力度。  
Compile and issue the Key Points of Internal Audit and Internal Control and Supervision, and strengthen audit efforts around major policy formulation, reform priorities, procurement, investment and other key business areas.
- 组织开展公司及各子企业 2023 年制度建设，制定发布年度制度建设计划，按月督促推进。2023 年，总部层面制度立改废 54 项，各子企业层面制度立改废 1,485 项。  
Organised the system construction of the Company and its subsidiaries in 2023, formulated and released the annual system construction plan, and supervised and promoted it on a monthly basis. In 2023, 54 items of systems were established, changed and abolished at the headquarters level, and 1,485 items of systems were established, changed and abolished at the level of subsidiaries at all levels.

监督检查  
Supervision and inspection

- 制定《2023年-2025年内控监督规划》，开展内控监督检查。  
Formulate the 2023-2025 Internal Control Supervision Plan and carry out internal control supervision and inspection.
- 成立内部控制评价领导小组和工作小组，组织开展全级次年度内控自评价。组织全部子企业自查自纠，围绕制度体系建设、制度执行、重点业务领域关键环节内控管理等进行检查，对发现的问题组织整改，确保内控体系有效。  
Set up the internal control evaluation leading group and working group, organize and carry out the annual internal control self-evaluation at all levels. Organize all subsidiaries to conduct self-examination and self-correction, conduct inspections around institutional system construction, institutional execution, internal control management of key links in key business areas, etc., and organize rectification for any problems found to ensure the effectiveness of the internal control system.

信息化建设  
Information construction

- 开发合规管理和风险管理信息系统，参与开展业财一体信息化建设，完善合同管理信息系统和审计信息系统建设，逐步实现风险管控效果和效率的提升。  
Develop compliance management and risk management information systems, participate in the construction of integrated financial and business information, improve the construction of contract management information system and audit information system, and gradually improve the effect and efficiency of risk management and control.



## 加强党建引领 Strengthening the Guidance of Party Building

中国通号深入学习贯彻习近平新时代中国特色社会主义思想 and 党的二十大精神，坚持贯彻落实习近平总书记重要指示批示精神，认真落实党中央、国务院各项工作部署，坚持勇担当、做贡献、保增长策划全年党建工作，推动党建和发展深度融合共促，为公司高质量发展提供坚强的政治保障。

CRSC deeply studies and carries out Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era and the guiding principles of the 20th CPC National Congress, resolutely implements General Secretary Xi Jinping's important instructions, and earnestly carries out the work arrangements of the CPC Central Committee and the State Council. It upholds the principles of taking responsibility, making contributions, and ensuring growth to plan the Party building work for the whole year, promotes the integration of Party building and development, and provides strong political guarantee for the Company's high-quality development.

推动主题教育走深走实  
Promoting in-depth and solid implementation of thematic education

- 紧紧围绕“学思想、强党性、重实践、建新功”的总要求，善于“出实招”、成于“下实功”、源于“重实学”、基于“求实效”，坚持把实的要求贯穿主题教育全过程，确保层层压实责任、层层抓落实、层层深学笃行、层层担当作为，做到理论学习求实、调查研究扎实、检视整改严实、推动发展务实、建章立制从实，高质量深耕细作，高质量严抓实管，高质量创新载体，高质量开展第一批和第二批主题教育，达到预期目的、取得明显成效。

Focusing on the general requirements of "learning thought, strengthening party spirit, emphasizing practice and building new skills", good at "putting forward practical measures," achieving "practical work," originating from "emphasizing practical learning," and based on "seeking practical results", We adhere to the practical requirements throughout the whole process of theme education, ensured that the responsibility is compacted layer by layer, the implementation is carried out layer by layer, the deep learning and practice are carried out layer by layer, and the responsibility is taken layer by layer, so as to achieve realistic theoretical learning, solid investigation and research, strict inspection and rectification, pragmatic development, practical establishment of rules and regulations, high-quality deep cultivation and meticulous work, high-quality strict management, and high-quality innovation carrier. The first and second batches of thematic education were carried out with high quality to achieve the expected purpose and achieve remarkable results.

- 开设“主题教育看变化”专栏，7篇信息被中央主题教育官网刊载，10篇信息在国资委网站刊登，2篇经验做法在国资委《宣传工作》刊登；《国资委主题教育简报》10次刊载主题教育工作成效，国资小新2次刊载中国通号主题教育成效。

Establish a column titled "Insights from Theme Education"; with 7 articles published on the official website of thematic education of the CPC Central Committee, 10 articles on the website of the SASAC, and 2 articles about experience and practice published in the SASAC's magazine Publicity Work; the SASAC Theme Education Briefing published the effectiveness of theme education work 10 times, and the SASAC News published the effectiveness of CRSC's theme education twice.

- 主题教育开展情况获得中央第18巡回指导组充分肯定。

The implementation of thematic education has been fully affirmed by the 18th central guiding team.



### 学习宣传贯彻重要会议精神

#### Studying, promoting and implementing the spirit of important Party meetings

- 全年党委理论中心组学习 14 次、集中研讨 4 次；落实党委常委会“第一议题”14 次，同步建立督办台账，明确责任部门，及时跟踪问效、督导推动，形成工作闭环。  
The Party committee's theory center group conducts 14 study sessions and 4 concentrated discussions throughout the year; implement the "First Issue" campaigns by the Standing Committee of the Party Committee 14 times, concurrently establish a supervision ledger, clarify the responsible departments, conduct follow-up oversight and see real results, and promote progress, forming a closed-loop work.
- 举办中国通号党委主题教育读书班专题辅导报告会；主要领导在《科技日报》和《国企业管理》发布署名文章；2 个作品获评中央企业党的二十大精神基层理论宣讲优秀微视频、1 个作品被国资委官网选登；1 个课题荣获中央企业党建政研会 2023 年度优秀课题研究成果二等奖；积极参加第六届中央企业优秀故事展示活动，中国通号 17 个企业故事在人民网刊登，2 个优秀故事荣获三等奖。  
The special guidance report meeting of the thematic education reading class of the Party Committee of CRSC were held; main leaders published signed articles in Science and Technology Daily and China State-owned Enterprise Management; two works were selected as excellent micro videos for grassroots theoretical propaganda on the guiding principles of the 20th CPC National Congress by state-owned enterprises, and one work was selected for publication on the official website of the SASAC; Ideological and Political Work of State-Owned Enterprises in 2023; CRSC actively participated in the 6th Exhibition of Excellent Stories of State-Owned Enterprises, with 17 enterprise stories published on People's Daily Online, and two excellent stories winning third prize.
- 制定《关于开展深化改革促发展十大实践课题研究的工作方案》，贯通融入主题教育的“理论学习、调查研究、推动发展、检视整改”各环节，贯通解决“六个方面突出

### 持续筑牢基层堡垒

#### Continuously consolidating the key role of grassroots

- 夯实基层党组织建设，11 家二级企业召开党代会顺利换届，15 家二级企业高标准开展党组织书记述职评议、民主生活会，405 个党支部顺利开展组织生活会和民主评议党员。  
Consolidate the construction of grassroots Party organizations, specifically, 11 second-class enterprises held Party congresses and successfully changed their terms, 15 second-class enterprises carried out high-standard work reports and evaluations of Party organization secretaries and democratic life meetings, and 405 Party branches smoothly conducted organizational life meetings and democratic evaluations of Party members.
  - 坚持大抓基层的鲜明导向，持续开展党员积分管理、党支部星级达标活动，积极选树基层示范党支部、基层书记抓党建示范案例、融入生产经营中心工作抓党建示范载体。  
Adhere to the clear orientation of focusing on grassroots, continuously carry out Party member credit management and Party branch star rating activities, actively select and establish grassroots demonstration Party branches, demonstration cases of grassroots secretaries in charge of Party building, and demonstration carriers of integrating Party building into central work such as production and operation.
- 问题”和建设“七大体系”、打好“七套组合拳”，不断推动主题教育走深走实。
- Formulate the Work Plan for Conducting Research on Ten Major Practical Topics to Deepen Reform and Promote Development, integrate the various links of "theoretical learning, investigation and research, promoting development, review and rectification" into thematic education, address the "six prominent issues", and build the "seven major systems", and implement the "seven policy combinations", continuously promoting in-depth and solid implementation of thematic education.

### 提升党员干部政治素质

#### Improving the political quality of Party members and cadres

- 印发党员教育培训工作计划，组织做好《2019-2023 年全国党员培训教育工作规划》贯彻落实情况总结评估。  
Publish the work plan for the education and training of Party members, and organize the summary and evaluation of the implementation of the National Work Plan for the Training and Education of Party Members from 2019 to 2023.
- 开展党员干部专项轮训，组织开展基层党建提质增效“七抓”工程实操班暨基层党支部书记示范培训班。  
Carry out special rotation training for Party members and cadres, and organize the "seven emphases" project training classes and demonstration training classes for grassroots Party branch secretaries to improve the quality and efficiency of grassroots Party building.

### 通号档案 CRSC Profile

#### “深化改革促发展十大实践课题”

党建引领、科技创新、市场开拓、数字通号建设、产业链供应链管理、提质增效、人才培养、安全管理、健全大监督体系、风险防控。

“Ten major practical topics to deepen reform and promote development”: guidance of Party building, technological innovation, market development, digital CRSC construction, industrial chain and supply chain management, quality and efficiency improvement, talent cultivation, safety management, sound overall supervision system, risk prevention and control.



通号（长沙）轨道交通控制技术有限公司智能电气分公司深入开展主题教育，以守正创新推动装备事业高质量发展  
Intelligent Electrical Branch of CRSC (Changsha) Rail Transit Control Technology Co., Ltd. deeply carries out thematic education, promoting high-quality development of equipment business with integrity and innovation

## 恪守商业道德 Abiding by Business Ethics

中国通号严格遵守《中华人民共和国反洗钱法》《中华人民共和国反不正当竞争法》《关于禁止商业贿赂行为的暂行规定》等法律法规和业务所在地适用的防止贿赂、勒索、欺诈及反洗钱的相关法律法规，反对一切形式的贪污腐败行为和不正当竞争。

CRSC strictly complies with the *Anti-Money Laundering Law of the People's Republic of China*, the *Anti-Unfair Competition Law of the People's Republic of China*, the *Interim Provisions on the Prohibition of Commercial Bribery*, and other relevant laws and regulations on prevention of bribery, extortion, fraud, and anti-money laundering applicable in the business location, and opposes all forms of corruption and unfair competition.

公司制定《关于查办腐败案件向集团公司纪委报告的实施办法（试行）》《纪检信访举报工作管理办法》等制度，积极畅通举报渠道，在官网公布纪检信访举报电话及邮箱。完善信访举报的接收、分流、研判处置、交办件的检查督办，明确工作要求和责任。

CRSC has formulated the *Implementation Measures on Reporting Investigation and Handling of Corruption Cases to the Discipline Inspection Commission of the Group Company (Trial)* and the *Administrative Measures for Disciplinary Inspection and Complaint Reporting*, actively smoothing the reporting channels, and publishing the hotline and email address for disciplinary inspection and complaint reporting on the official website. It has improved the reception, diversion, investigation and judgment and handling of petition reports, and the inspection and supervision of submitted cases, and clarified work requirements and liabilities.

### 落实廉洁监督 Implementing clean supervision

公司强化廉洁风险防范和监督制约机制，持续完善党风廉政建设和反腐败工作协调小组工作机制，及时开展案件质量和执纪安全监督检查，不断规范线索处置、审查审理等各项工作流程，提高监督执纪工作质量。定期召开党风廉政建设和反腐败工作协调小组会议，凝聚部门监督合力，确保公司运营廉洁高效。

CRSC has strengthened the integrity risk prevention, supervision and restriction mechanism, continuously improved the working mechanism of the coordination group for improving Party conduct, building a clean and honest government, and combating corruption, carried out timely safety supervision and audit on process quality and discipline enforcement, and constantly standardized various work processes such as clue disposal, review and trial so as to improve the quality of supervision and discipline enforcement. It regularly holds coordination group meeting of the Party conduct and clean government construction and anti-corruption work, to consolidate departmental supervision and collaboration, and ensure the clean and efficient operation of the Company.

### 深化专项整治 Deepening special rectification

公司研究制定并下发《关于进一步落实靠企吃企禁止性措施的指导意见》，坚决打击“靠企吃企”等腐败问题，系统总结有效做法，并在国资委《党风廉政专刊》刊发推广。

CRSC studied and formulated the *Guidance Opinions on Further Implementing Prohibitive Measures to Crack Down on Making Private Profit from Their Own Game*, resolutely cracked down on corruption such as playing their own game and making private profit from CRSC, systematically summarized effective practices, and published and promoted them in SASAC's *Special Issue on Party Conduct and Clean Government*.

### 投诉举报机制 Complaint and whistleblowing mechanism

### 开展廉洁教育 Conducting integrity education

开展“清风润通号 廉心向未来”廉洁微视频大赛、党章党规党纪知识竞赛等廉洁警示教育和党风廉政建设专题学习活动，坚守重要节点，贯通联动做好纠“四风”树新风工作，营造风清气正良好氛围。

CRSC carried out integrity warning education and special study activities on Party conduct and clean government construction, such as the honesty micro-video competition titled “Building a Clean and Honest CRSC for a Better Future” and the knowledge competition on Party Constitution, Party Rules and Party Discipline, focused on important nodal points, coordinated to rectify “four malfeasances” and foster healthy tendencies, and created a clean and upright atmosphere.

### 举报人保护 Whistleblower protection

公司严格落实信访举报保密制度和各项保密要求，对举报人的姓名、工作单位、住址等有关情况以及举报内容严格保密，坚决做到不将信访举报材料、举报人信息转给或者告知被举报的组织和个人，保护举报人合法权益。

CRSC strictly implements the confidentiality system for petition reports and various confidentiality requirements, and strictly keeps confidential the whistleblower's name, work unit, address and other relevant information, as well as the content of the report. It is resolutely ensured that the materials and information of the whistleblowers are not transferred to or disclosed to the organizations and individuals being reported, in order to protect the legitimate rights and interests of the whistleblowers.

## 中国通号现行反腐败主要制度文件（例举）

### Main Anti-corruption System Documents of CRSC (Examples)

《对领导干部进行提醒、函询和诫勉的实施细则》 Implementation Details for Reminding, Inquiring, and Admonishing Leadership Cadres	《监督执纪工作暂行办法》 Interim Measures for Supervision and Discipline Enforcement
《职工违纪违规处理规定》 Provisions on Handling Employees' Violation of Disciplines and Regulations	《监督执纪工作手册》 Supervision and Discipline Enforcement Work Manual
《纪委监督检查执纪审查安全工作暂行规定》 Interim Provisions on Supervision, Inspection and Discipline Review of Safety Work by the Discipline Inspection Commission	《廉洁风险防控工作手册》 Integrity Risk Prevention and Control Manual
《关于实行廉政谈话制度的规定》 Regulations on the Implementation of the System of Integrity Talks	《规范党员干部操办婚丧喜庆事宜的暂行规定》 Interim Provisions on Standardizing Party Members and Cadres' Organization of Weddings, Funerals, and Celebrations
《受处分人员回访教育实施暂行办法》 Interim Measures for the Implementation of Return Visit and Education for Punished Personnel	《招标投标活动投诉处理实施办法》 Implementation Measures for Complaint Handling in Bidding Activities
《纪委运用监督执纪“四种形态”实施办法》 Implementation Measures for the Discipline Inspection Commission to Apply the "Four Methods" of Supervision and Discipline Enforcement	《招标监督管理办法》 Measures for the Supervision and Administration of Bidding
《领导干部容错纠错实施办法（试行）》 Implementation Measures for Error Tolerance and Error Correction for Leading Cadres (Trial)	《巡视整改督查督办暂行办法》 Interim Measures for Supervision and Handling of Disciplinary Inspection Rectification
	《关于规范企业领导人员配偶、子女及其配偶、特定关系人经商办企业行为的实施办法》 Implementation Measures for Standardizing the Business Activities of Corporate Leaders' Spouses, Children and Their Spouses, and Specific Related Parties

## 中国通号反腐败绩效

### CRSC Anti-corruption Performance

指标 Indicator	单位 Unit	2021 年 2021	2022 年 2022	2023 年 2023
已审结的重大贪腐、舞弊、欺诈、洗黑钱等案件 Major corruption, fraud, bribery, and money laundering cases that have been concluded	件 Pcs	0	0	0
针对公司或雇员提出的贪污诉讼案件 Corruption lawsuits filed against the Company or employees	件 Pcs	0	0	0
人均反腐败教育时长 Average anti-corruption education time	小时 Hour	7.2	5.8	8.5
员工反腐败教育覆盖率 Employee anti-corruption education coverage rate	%	100	100	100

## 更出彩的创新

### More Outstanding Innovation

## 落实战略布局

### Implementing Strategic Layout

中国通号勇当科技创新自立自强“排头兵”，完善科技战略布局，聚焦领先的控制技术能力、集成能力和全产业链优势，深化自主创新和产业化应用能力，加强技术与市场的协同联动，以通号科技支撑中国高铁跑得更稳、更安全，全力打造可信赖的国家战略科技力量。

CRSC takes the lead in technological innovation and self-reliance, improves the strategic layout of science and technology, focuses on leading control technology capabilities, integration capabilities and the advantages of the whole industrial chain, deepens independent innovation and industrial application capabilities, strengthens the synergy between technology and the market, supports China's high-speed rail to run more steadily and safely with CRSC technology, and strives to build a reliable national strategic scientific and technological force.

公司持续推动“一个体系、二个中心、三个高地、七大突破”的科技创新总体战略目标落实，制定“十四五”科技发展战略规划，形成“十四五”重大专栏任务 10 个、重大科技专项任务 14 项。将公司科技发展战略规划与公司整体战略规划、行业发展规划、企业年度行政重点工作有效衔接，保障规划稳步落地。

The Company continues to promote the implementation of the overall strategic goal for S&T innovation of “One System, Two Centers, Three Highlands and Seven Breakthroughs”, formulating the 14th Five-Year Plan for scientific and technological development, and forming 10 major strategic tasks and 14 major S&T projects according to the 14th Five-Year Plan. It effectively connects its scientific and technological development plan with its overall strategic plan, industry development plan and annual administrative priorities, ensuring the steady implementation of the plan.

## 提升创新能力

### Enhancing Innovation Capability

中国通号着力提高创新能力和价值创造能力，实施“集中攻关”“揭榜挂帅”“成果孵化”“效益评估”“科技奖励”等科技创新制度，释放创新潜能，更好实现高水平科技自立自强。

CRSC strives to improve its innovation capability and value creation capability, and implements S&T systems such as “concentrating efforts to achieve breakthroughs in core technologies in key fields”, “enlisting and leading”, “incubation of achievements” and “benefit evaluation”, to unleash innovation potential and achieve high-level scientific and technological self-reliance.

## 构建创新平台

### Building Innovation Platform

中国通号发挥创新平台的资源汇聚和桥梁纽带作用，加快培育和建设省部级及以上创新平台，全面提升创新创效能力。截至 2023 年末，公司共拥有 3 个博士后科研流动工作站、3 个院士工作站、12 个国家和行业创新平台、18 个国家级创新示范、35 余个省部级重点实验室 / 工程技术研究中心 / 工程实验室。

CRSC gives full play to the resource aggregation and bridging role of innovation platforms, accelerating the cultivation and construction of innovation platforms at the provincial and ministerial levels or above, comprehensively enhancing innovation and efficiency capabilities. By the end of 2023, CRSC has 3 postdoctoral mobile stations, 3 academician workstations, 12 national and industrial innovation platforms, 18 national innovation demonstration titles, and over 35 provincial and ministerial key laboratories/engineering technology research centers/engineering laboratories.

报告期内，“轨道交通产业技术基础公共服务平台”列入工业和信息化部产业技术基础公共服务平台名录；轨道交通智能列控技术创新中心、轨道交通通信信号检测评估技术创新中心、上海高速铁路列控装备工程技术研究中心获得上海市批复。

During the reporting period, the Rail Transit Industrial Technology Basic Public Service Platform was included in the list of industrial technology basic public service platforms of the Ministry of Industry and Information Technology; the rail transit intelligent train control technology innovation center, the rail transit communication signal detection and evaluation technology innovation center, and the Shanghai high-speed railway train control equipment engineering technology research center obtained approval from the Shanghai Municipal Government.



研究设计院集团成功获批试验检测类产业技术基础公共服务平台，是轨道交通行业内首个获得产业技术基础公共服务平台的企业

The CRSC Research & Design Institute Group has successfully obtained approval for the industrial technology basic public service platform for testing and detection, making it the first enterprise in the rail transit industry to obtain such a platform

## 科技人才建设

### Scientific and Technological Talent Construction

中国通号确立人才引领发展的战略地位，加强各类战略人才储备。制定《加强高端科技人才培养方案》，不断壮大科技领军人才和青年拔尖人才队伍，加速打造高端科技领军人才和高水平创新团队和人才梯队。

CRSC has established the strategic position of talent leading development and strengthened the reserve of various strategic talents. It has formulated the Strengthening Program for Cultivating High-end Scientific and Technological Talents, continuously strengthening the team of leading scientific and technological talents and outstanding young talents, accelerating the construction of high-level scientific and technological talents, innovation teams and talent echelons.

报告期内，公司 2 人获评国家高层次人才特殊支持计划科技创新领军人才、1 人荣获中国铁道学会推荐“最美铁道科技工作者”、4 名科技人员获得首届秦驰道专项奖表彰、12 人分获第十六届詹天佑贡献奖和青年奖，2 人入选中国科协第八届青年人才托举工程名单，1 人获批“聚焦北京国际科技创新中心建设——央企杰出工程师在行动”杰出工程师。

During the reporting period, the Company had 2 individuals awarded leading scientific and technological innovation talents of National Special Support Plan for High-level Talents for Technological Innovation Leading Talents, 1 individual honored as the “Most Beautiful Railway Technology Worker” recommended by the China Railway Society, 4 technical personnel recognized with the inaugural Qinchidao Special Award, 12 individuals awarded the 16th Zhan Tianyou Contribution Award and Youth Award, 2 individuals selected in the list of the 8th Young Talent Support Project of China Association for Science and Technology, and 1 individual approved as an outstanding engineer of “Focusing on the Construction of Beijing International Science and Technology Innovation Center - Outstanding Engineers in Action”.

报告期内  
分获第十六届詹天佑贡献奖和青年奖

12人

入选中国科协第八届青年人才托举工程名单

2人

获批“聚焦北京国际科技创新中心建设——央企杰出工程师在行动”杰出工程师

1人

During the reporting period, 12 individuals awarded the 16th Zhan Tianyou Contribution Award and Youth Award, 2 individuals selected in the list of the 8th Young Talent Support Project of China Association for Science and Technology, and 1 individual approved as an outstanding engineer of “Focusing on the Construction of Beijing International Science and Technology Innovation Center - Outstanding Engineers in Action”

## 中国通号科技投入及承担科研项目情况

### CRSC's Research Inputs and Scientific Research Projects

指标 Indicator	单位 Unit	2021年 2021	2022年 2022	2023年 2023
研发投入 R&D input	亿元 RMB 100 million	19.02	18.74	20.38
累计拥有研发人员 Number of R&D personnel	人 Person	4,374	4,428	4,345
开展科研项目 Scientific research projects	个 Pcs	772	806	871
承担国家级科研项目 National scientific research projects undertaken	件 Pcs	5	4	5
承担省部级科研项目 Provincial and ministerial research projects undertaken	件 Pcs	6	7	7
新增国家级奖励 New National Awards	项 Item	0	2	2
新增省部级奖励 New provincial and ministerial awards	项 Item	38	45	70

## 知识产权保护

### Intellectual Property Protection

中国通号严格遵守《中华人民共和国民法典》和刑法、专利法、商标法、著作权法等涉及知识产权保护的相关法律法规，制定《知识产权管理办法》等内部制度，规范公司商标、专利、著作权等知识产权的确权、维护与使用；制定《海外知识产权布局规划报告》，开展目标国专利保护环境评估工作，加大海外知识产权风险防御。

In strict accordance with the Civil Code of the People's Republic of China, Criminal Law, Patent Law, Trademark Law, Copyright Law, and other laws and regulations related to intellectual property protection, CRSC has formulated the Intellectual Property Management Measures and other internal systems to regulate the confirmation, maintenance and use of intellectual property rights such as trademarks, patents and copyrights of the Company; formulated the Overseas Intellectual Property Layout Planning Report to carry out assessment of the patent protection environment in target countries and enhance overseas intellectual property risk prevention.

报告期内，新增省级高价值专利培育中心 1 家，新增中国专利奖银奖 2 项；北京铁路信号有限公司获批国家知识产权示范企业，上海铁路通信有限公司荣获国家知识产权优势企业。

During the reporting period, 1 provincial high-value patent cultivation center was added, and 2 silver awards of China Patent Award were added; Beijing Railway Signal Co., Ltd. was approved as the national intellectual property demonstration enterprise, and Shanghai Railway Communication Co., Ltd. was awarded the national intellectual property advantage enterprise.

### 中国通号获得专利情况

#### CRSC's patents

指标 Indicator	单位 Unit	2021 年 2021	2022 年 2022	2023 年 2023
累计拥有有效授权专利 Accumulated valid authorized patents	件 Pcs	3,202	3,929	4,618
累计拥有发明专利 Accumulated invention patents	件 Pcs	1,066	1,649	2,434
累计拥有海外授权专利 Accumulated overseas authorized patents	件 Pcs	108	211	281
累计拥有软件著作权 Accumulated software copyright	件 Pcs	1,517	1,793	2,167
新增授权专利 Newly Authorized Patents	件 Pcs	694	876	820
新增授权发明专利 Newly licensed invention patents	件 Pcs	337	591	667
新增申请专利 Newly Applied Patents	件 Pcs	1,204	1,339	1,510
新增申请发明专利 Newly Applied Invention Patents	件 Pcs	886	1,119	1,281
新增申请海外专利 Newly applied overseas patents	件 Pcs	118	142	168

## 科技创新成果

### Technological Innovation Achievements

中国通号加强关键核心技术攻关，开展前瞻性技术与成果转化，发挥“三位一体”产业优势，加强技术与市场的协同联动，将科技创新优势转化为产品优势。报告期内，新增“智能制造试点示范”、国家专精特新“小巨人”企业等国家级示范称号；编制完成《中国通号专利转化实施试点方案》，加快创新成果向现实生产力转化。

CRSC strengthens research on key and core technologies, carries out forward-looking technology research and achievement transformation, leverages the “three-in-one” industrial advantages, strengthens the synergistic interaction between technology and market, and transforms technological innovation advantages into product advantages. During the reporting period, the Company was awarded national demonstration titles such as “Intelligent Manufacturing Pilot Demonstration” and New “Little Giant” Enterprise, specialty and innovation, and completed the Pilot Scheme for the Implementation of CRSC Patent Transformation to accelerate the transformation of innovative achievements into real productive forces.

### 中国通号 2023 年科技创新重要成果（列举）

#### Key Technological Innovations of CRSC in 2023 (Examples)

##### 成渝中线高铁 CR450 科技创新工程

##### CR450 science and technology innovation project of Second Chengdu-Chongqing High-speed Railway

完成面向更高速度的列控系统总体技术方案、地面设备和车载设备的适配修改，完成大尺寸应答器、适配 CR450 动车组 BTM 天线单元原理样机的研制和测试，为进一步工程应用奠定基础。

CRSC completed the adaptation and modification of the overall technical scheme, ground equipment and on-board equipment of the train control system for higher speed, and completed the development and testing of the large-size transponder and the prototype based on principles for adapting CR450 EMU BTM antenna unit, laying the foundation for further engineering application.

##### 3 万吨级重载货运列车技术突破

##### Technological breakthrough in 30,000-ton heavy-haul freight train

推进重载列车群组运行控制系统完成系统车载、地面、通信共计 18 项产品研发及系统装备上道试验评审，开展现场单机群组功能试验，启动群组运行控制包神铁路北线上道应用。

CRSC promoted the heavy-haul train group operation control system to complete the research and development of 18 on-board, ground and communication products and the on-track test evaluation of system equipment, carried out on-site single-machine group function test, and started the on-track application of group operation control on the northern line of Baotou-Shenmu Railway.

##### 超高速低真空管道磁浮交通全尺寸试验线

##### Full-scale test line for ultra-high speed and low vacuum pipeline maglev transportation

完成车载设备低真空试验和高精度地面定位测速样机研制，并通过航天半实物环境调试，在山西高速飞车试验场完成二阶段全尺寸悬浮试验。

CRSC completed the low-vacuum test of vehicle-mounted equipment and the development of a high-precision ground positioning and speed measurement prototype, and completed the second-stage full-scale levitation test at the high-speed test track in Shanxi through aerospace semi-physical environment debugging.

### 和若铁路实现“北斗定位+列车移动闭塞追踪” 创新技术应用

Ruoqiang-Hetian Railway realizes the innovative technology application of “BeiDou positioning + train moving block tracking”

自主研发的基于北斗定位的移动闭塞新型列控系统在和若铁路正式开通，首次实现了“北斗定位+列车移动闭塞追踪”这一创新技术在国家铁路的成功应用。

The self-developed moving block train control system based on BeiDou positioning was officially put into operation on the Ruoqiang-Hetian Railway, marking the first successful application of the innovative technology “BeiDou positioning + train moving block tracking” on the national railway.

### 智慧货场数字化综合管控系统取得创新突破

The digital integrated management and control system of smart freight yard achieves innovation breakthroughs

智慧货场数字化综合管控系统创新性引入了 5G+北斗融合定位、L4 级 IGV 自动驾驶、数字孪生建模、AI 智能分析等先进技术，实施装备自动控制、计划统筹编制、效果综合评价，有力提升了生产作业效率，系统正在磨憨铁路口岸开展试运行。

The digital integrated management and control system of smart freight yard has innovatively introduced advanced technologies such as 5G+BeiDou fusion positioning, L4-level IGV automatic driving, digital twin modeling, and AI intelligent analysis, which implements equipment automatic control, coordinated preparation of plans and comprehensive evaluation of effects, and powerfully enhances the efficiency of production and operation, and the system is under trial operation at the Mohan railway port.

### 全球首例多模城轨列控系统现场运用

On-site application of the world's first multi-mode urban rail train control system

在不影响原有 TBTC 系统运营的基础上，叠加一套可兼容 TBTC 的 CBTC 新系统，公司完成全球首个多模城轨列控系统改造——上海地铁 2 号线信号系统改造项目，即让两套不同年代、不同制式、不同厂家、不同设计的信号系统实现无缝切换。就好比让两大系统都掌握“双语”，可以实现无障碍沟通。

On the basis of not affecting the operation of the original TBTC system and superimposing a new CBTC system compatible with TBTC, the Company completed the renovation project of the signal system of Shanghai Metro Line 2, the world's first multi-mode urban rail train control system renovation project, which enables seamless switching between two sets of signal systems of different ages, different systems, different manufacturers and different designs. It's like allowing both systems to master “two languages” and achieve barrier-free communication.

### 全域视频智能感知系统成功部署上线

The comprehensive video intelligent perception system successfully deployed and launched

公司研发的全域智能视频感知系统具备视频汇聚共享、视频 AI 赋能解析、视频 AI 驾驶舱应用等功能，在济南市起步区全域视联监管服务平台项目成功部署上线。

The Company's independently developed comprehensive intelligent video perception system has functions such as video convergence and sharing, video AI empowerment and analysis, and video AI cockpit application. It has been successfully deployed and launched in the all-domain video supervision service platform project in the starting area of Jinan.

## 中国通号全力保障亚运会期间轨道交通安全运营

案例 Case

### CRSC fully guarantees the safe operation of rail transportation during the Asian Games

2023 年 9 月，第 19 届亚运会在杭州召开。中国通号秉承“建维一体”理念，发挥通信信号专业优势，积极参与各主办、协办城市亚运期间轨道交通运营维护保障工作，保障赛事期间乘客的出行安全，为亚运会的顺利举办贡献通号力量。

On September 2023, the 19th Asian Games was held in Hangzhou. CRSC upholds the philosophy of “integration of construction and maintenance”, leverages its professional advantage in communication signal, actively participates in the maintenance and support work of rail transportation during the Asian Games in host and co-host cities, guarantees the travel safety of passengers during the event, and contributes the strength of CRSC to the smooth operation of the Asian Games.

**卡斯柯** 杭州地铁 19 号线的信号系统供应商，为其提供成熟的 CBTC 信号系统解决方案，结合线路自身特点，推出多项技术创新。

**Casco Company:** The supplier of the signaling system for Hangzhou Metro Line 19, providing mature CBTC signal system solutions and launching multiple technological innovations based on the characteristics of the line itself.

**上海工程局集团** 在亚运会举办前先后参与杭州地铁 1 号线、2 号线等 7 条地铁线路的建设施工任务，以实际行动为杭州轨道交通网络建设添砖加瓦。

**CRSC Shanghai Engineering Group:** Prior to the Asian Games, it participated in the construction tasks of 7 metro lines in Hangzhou, including Hangzhou Metro Line 1 and Line 2, contributing to the construction of the Hangzhou rail transit network with practical actions.

**上海工程局集团** 在亚运期间提供杭州地铁 3 号线、16 号线地铁通信、AFC 等系统的维护保障服务，线路涉及黄龙体育中心、杭州体育馆等重要亚运场馆。

**CRSC Shanghai Engineering Group:** It provided maintenance and support services for communication, AFC and other systems of Hangzhou Metro Line 3 and Line 16 during the Asian Games, covering important Asian Games venues such as Yellow Dragon Sports Center and Hangzhou Gymnasium.

## 助力河南首条全自动无人驾驶线路开通

案例 Case

### Assisting in the opening of Henan's first fully automatic driverless line

2023 年 9 月，郑州市轨道交通 10 号线一期正式开通载客试运营，卡斯柯凭借在城轨全自动运行领域成熟的技术和丰富的经验，在本项目中作为技术牵头方统筹全自动一致性协调工作。郑州 10 号线是河南省首条开通最高自动化等级（GoA4 级）的无人驾驶线路，该线路不仅实现了自动唤醒、自检、自动发车、精准停车、自动回库及休眠等更为经济高效的无人驾驶功能，同时开通智能场段和智能运维功能，对推进郑州城市轨道交通数字化、智慧化升级，加速完善轨交线网建设意义重大。

In September 2023, Zhengzhou Metro Line 10 Phase I officially went into trial operation carrying passengers. Casco Company, with its mature technology and rich experience in the field of fully automatic operation of urban rail, served as the technical lead in this project, coordinating the work for full automation consistency. Zhengzhou Metro Line 10 is the first driverless line in Henan Province with the highest level of automation (GoA4). This line has not only realized more economical and efficient driverless functions such as automatic wake-up, self-check, automatic departure, precise parking, automatic return to the depot and sleep, but also introduced two functions, namely, smart depot and smart O&M, which is of great significance to promote the digitalization and intelligent upgrading of Zhengzhou urban rail transit and accelerate the improvement of rail transit network construction.



## 数字化转型升级 Digital Transformation and Upgrading

中国通号加速推进高端化、智能化、绿色化转型发展，以推动信息化和工业化深度融合为抓手，持续深入推进两化融合管理体系建设，高标准打造新型能力，不断增强核心竞争力，为企业数字化转型和高质量发展注入动力，为国家铁路及轨道交通行业客户提供信息化整体解决方案。

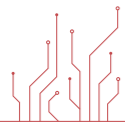
CRSC has accelerated the transformation of high-end, intelligent and green development. By focusing on advancing the deep integration of informatization and industrialization, it has continuously and thoroughly promoted the construction of the management system of such integration, built new capabilities with high standards, and continuously enhanced core competitiveness, injecting momentum into the digital transformation and high-quality development of enterprises, and providing overall information solutions for customers in the national railway and rail transit industry.

### 中国通号 2023 年数字化建设重要成果（列举）

#### Key Achievements of CRSC in Digitalization Construction in 2023 (Examples)

##### 产研一体化

##### Integration of production and research



深化产研一体化，完成研发与生产 PLM 系统融合，实现机柜级、平台单元级的产研融合图纸协同开发，实现一图到底和数据共享，大幅减少制造企业产业化周期。

Deepen the integration of production and research, complete the integration of R&D and production of PLM system, achieve the collaborative development of integrated production and research drawings at the cabinet level and platform unit level, realize one drawing and data sharing, and greatly reduce the industrialization cycle of manufacturing enterprises.

##### 供应商管理系统

##### Supplier management system



强化供应链数字化管控能力，试点实施 SRM 系统（供应商管理系统），完成系统蓝图设计、系统开发与测试、系统配置等阶段的建设任务，并成功上线运行，实现供应商全生命周期管理，提升企业与供应商采购过程高效协同的能力。

Strengthen the digital management and control capability of the supply chain, pilot the implementation of the SRM system (supplier management system), complete the construction tasks of system blueprint design, system development and testing, system configuration and other stages, and successfully put the system into operation, to achieve the full life cycle management of suppliers, and improve the ability of efficient collaboration between enterprises and suppliers in the procurement process.

##### 两化融合管理体系贯标

##### Implementation of the standards for the integration of informatization and industrialization management system



持续开展两化融合管理体系贯标工作，逐步形成“以价值效益为导向、数据为驱动、新型能力建设为主线”的数字化转型初步体系架构和方法机制。

Continue to carry out the implementation of the standards for the integration of informatization and industrialization management system, and gradually form a preliminary system architecture and method mechanism for digital transformation that is guided by value and benefits, driven by data, and focuses on new capacity building.



卡斯柯与通号（长沙）轨道交通控制技术有限公司顺利通过工信部两化融合管理体系 2.0 版认证，标志着中国通号数字化转型和数智化工业水平获得国家权威机构认可

Casco Company and CRSC (Changsha) Rail Transit Control Technology Co., Ltd. successfully obtain the certification of the MIIT 2.0 version of the integration of informatization and industrialization management system, marking that CRSC's digital transformation and digital intelligence industry level has been recognized by national authorities



研究设计院集团试运行智慧货场数字化综合管控系统，完成货场数字化综合管控系统、IGV 自动控制系统等 8 个新系统的示范应用

The CRSC Research & Design Institute Group starts a trial operation of the digital integrated management and control system of smart freight yards, completing the demonstration application of eight new systems, including the digital integrated management and control system of freight yards and the IGV automatic control system



通信信息集团自主研发全域智能视频感知系统，推动“视频+服务”在路外领域实现新突破

The CRSC Information & Communication Group independently develops a comprehensive intelligent video perception system, promoting “video + service” to achieve new breakthroughs in the off-road field

#### 无铅制程智能化数字化改造建设项目整产线设备功能完成验收

#### 案例 Case

#### Completion of acceptance of equipment function of the entire production line for lead-free process intelligent digital transformation construction project

2023 年 8 月，西安工业集团上通公司无铅制程智能化数字化改造建设项目，整产线设备功能完成验收，产线正式交付使用。无铅制程智能化数字化改造建设项目的建成验收标志着中国通号装备制造在无铅制程上拥有更完整，更规范标准的加工能力，为企业向电子加工行业头部企业看齐，形成无铅制程加工核心竞争力，助力无铅加工业务打下坚实基础。

In August 2023, the lead-free process intelligent digital transformation construction project of Shangtong Company of (Xi'an) Industry Group completed the acceptance of the equipment function of the whole production line, and the production line was officially delivered for use. The completion and acceptance of the lead-free process intelligent digital transformation construction project marks that CRSC's equipment manufacturing has a more complete and standardized processing capability in the lead-free process, which lays a solid foundation for the enterprise to keep pace with the leading enterprises in the electronic processing industry, form the core competitiveness of lead-free process processing and help lead-free processing business.



## 更优质的产品与服务 Better Products and Services

### 铸造卓越品质 Casting Excellent Quality

中国通号完善质量管理体系，秉持工匠精神，打造精品工程。遵守《中华人民共和国产品质量法》等法律法规，落实《质量管控规则》《产品质量检验工作管理办法》等内部制度规范，严格把控质量风险。

CRSC improves its quality management system, upholds the craftsmanship spirit, and creates high-quality projects. It complies with the *Product Quality Law of the People's Republic of China* and other laws and regulations, implements internal system standards such as the *Rules on Quality Management and Control* and the *Administrative Measures on Product Quality Inspection*, and strictly controls quality risks.

截至 2023 年末，中国通号及所属企业全部通过 ISO9000 质量管理体系第三方认证，工程建筑施工企业通过 GB50430 体系第三方认证，认证率 100%。报告期内，实现各检验批分项、分部工程施工质量检验合格率 100%，单位工程一次交验合格率 100%，行业产品质量监督抽查合格率 100%。未发生产品召回事件。

By the end of 2023, CRSC and its affiliated enterprises have all passed the third-party certification of ISO 9000 quality management systems, and engineering construction enterprises have passed the third-party certification of GB50430 system, with a certification rate of 100%. During the reporting period, it achieved a 100% quality inspection pass rate of each inspection batch, subitem and sub-project, a 100% engineering onetime delivery and acceptance pass rate, and a 100% quality supervision and inspection pass rate. No product recall event has occurred.

### 中国通号全面质量管理体系 CRSC Comprehensive Quality Management System

#### 产品研发 Product R&D

明确关键质量控制点及控制要求，进行可靠性、安全性计算与分析，保证产品满足相应等级安全标准。

Specifying key quality control points and control requirements, conducting reliability and safety calculation and analysis, ensuring products meeting corresponding levels of safety standards.

#### 设备制造 Equipment Manufacturing

设立产品质量安全部门，完成产品入场、出产、出厂全流程的严格检验，建立产品质量检验档案，禁止不合格产品流出。

Setting up product quality safety department, strictly inspecting the whole process of entry, production and delivery of products, establishing product quality inspection records, prohibiting the outflow of unqualified products.

#### 工程安装 Engineering Installation

严格按照施工安全标准，加强施工安装过程安全分析和质量控制。

Strictly following construction safety standards, strengthening safety analysis and quality control during construction installation.

#### 集成调试 Integration & Commissioning

提供产品检验、测试工作，识别并有效应对集成调试存在的管理与技术问题。

Providing product inspection and test, identifying and efficiently handling management issues and technical troubles existing in integration and commissioning.

#### 运营维护 Operation & Maintenance

细化产品使用说明书及培训教材，制定安全管控措施。

Detailing product instruction manuals and training materials, formulating safety prevention and controlling measures.

### 中国通号 2023 年质量管理重要举措 Important Measures for Quality Management of CRSC in 2023

▶ **开展 QC 攻关：**构建 QC 小组活动从立项、实施、检查、评价、转化的一系列闭环管理机制。

**Carry out QC research:** Establish a QC Circle activity that includes a series of closed-loop management mechanisms from project initiation, implementation, inspection, evaluation, to transformation.

▶ **有效控制风险：**针对不同管控层级，制定工程技术措施、管理措施、培训教育措施、个体防护措施、应急处置措施等五个方面措施。各单位根据风险分级清单，绘制安全风险四色空间分布图，实现对风险的有效控制。

**Effectively control risks:** Formulate engineering technical measures, management measures, training and education measures, personal protection measures, and emergency response measures for different management and control levels. All units should draw a four-color spatial distribution map of safety risks based on the risk classification list to achieve effective control of risks.

▶ **开展质量检查：**发布质量检查计划，组织各单位开展质量检查，对检查出的问题按照“五落实”要求严格整改。对于公司整改要求落实不力、质量问题整改不到位的单位及个人，严肃追责。

**Conduct quality inspection:** Release the quality inspection plan, organize all units to conduct quality inspection, and strictly rectify the problems found in the inspection according to the five implementation requirements. Units and individuals who fail to implement the rectification requirements of the Company and fail to rectify quality problems will be held accountable seriously.

▶ **培育质量文化：**发布质量培训计划，提高各级管理人员、现场作业人员质量意识。

**Cultivate quality culture:** Release the quality training plan, improve quality awareness of management personnel at all levels and on-site workers.



研究设计院集团自主研发的 DS6-60 全电子计算机联锁设备顺利通过 CRCC 产品认证

The DS6-60 full electronic computer interlocking equipment independently developed by the CRSC Research & Design Institute Group successfully passes the CRCC product certification



中国通号“融合贯通”QC 小组成功获得第 48 届国际质量管理小组会议 (ICQCC) 金奖

CRSC's "Integrated Penetration" QC Circle successfully obtains the Gold Award at the 48th ICQCC



## 提升客户服务 Improving Customer Service

中国通号严格遵守《中华人民共和国消费者权益保护法》等法律法规，严格遵循适用的服务和产品标签规定，以用户需求为导向、与市场需求接轨，不断提升用户认可度。

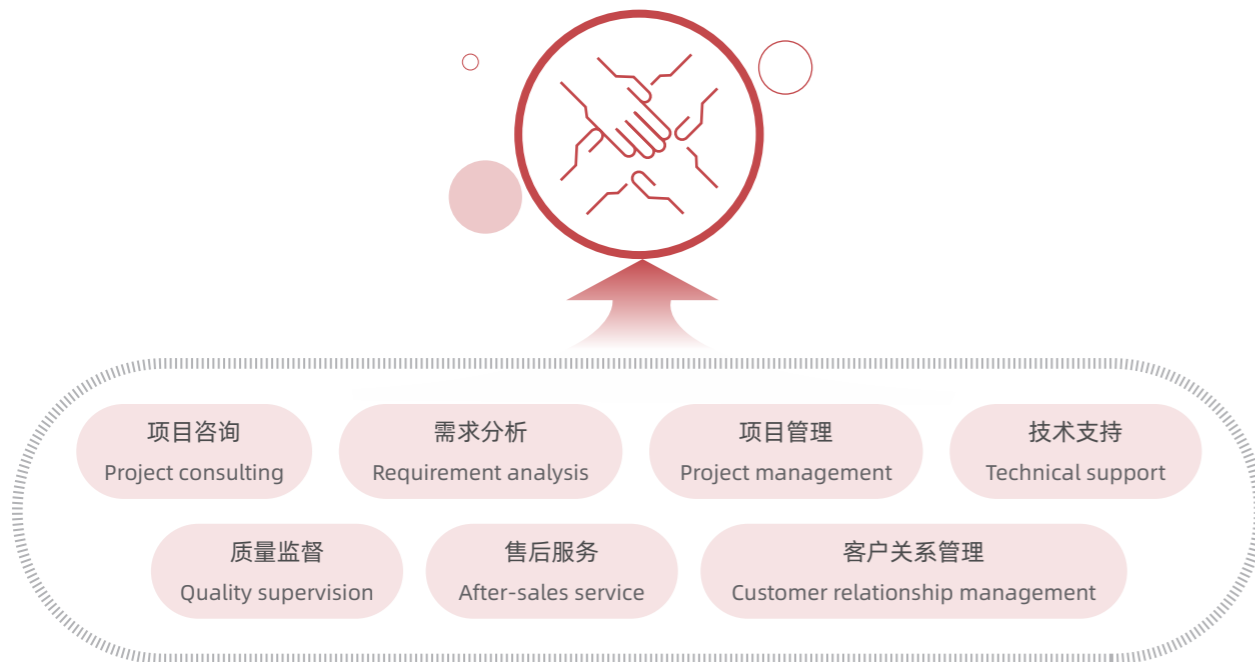
CRSC strictly abides by the *Law of the People's Republic of China on Protection of Consumer Rights and Interests* and other laws and regulations, and strictly follows the applicable service and product labeling regulations. It focuses on user needs, aligns with market demands, and continuously enhances user recognition.

## 完善售后服务 Improving After-sales Service

中国通号设置专门部门负责售后服务及投诉解决事宜，对全系统重点项目进行监督管控，根据客户需求，协调相关资源加以解决。公司项目部在项目交付后保留建制，并在现场配合客户完成包保、克缺等工作，完善售后服务相关工作。各项目部安排人员进行客户回访，作为持续改进和提高工程项目质量的重要依据。报告期内，公司未发生客户投诉事件。

CRSC has established a dedicated department responsible for after-sales service and complaint resolution, supervising and controlling key projects in the entire system, and coordinating relevant resources to solve customer demands. CRSC's project department retains the organizational structure after project delivery and cooperates with customers on site to complete tasks such as warranty services and deficiency rectification to improve after-sales service. Each project department arranges personnel to conduct return visits to customers, which serves as an important basis for continuous improvement of engineering project quality. During the reporting period, CRSC did not have any customer complaints.

### 中国通号客户服务管理体系 CRSC Customer Service Management System



## 用户隐私安全 User Privacy Security

中国通号贯彻落实及遵守《中华人民共和国个人信息保护法》等法律法规，遵循个人数据安全准则，“非必要不获取”。针对客户信息，公司使用统一的客户信息管理系统，设定各级相关人员查阅权限，并有专职部门负责客户资料保障工作，持续优化网络信息安全，确保客户信息及资料不泄露，有效保障客户权益。

CRSC implements and complies with the *Personal Information Protection Law of the People's Republic of China* and other laws and regulations, and follows the personal data security guidelines of "not collecting personal data unless necessary". In relation to customer information, the Company uses a unified customer information management system, sets access rights for relevant personnel at all levels, and has a dedicated department responsible for customer data protection work, continuously optimizing network information security to ensure that customer information and data are not leaked, effectively guaranteeing customer rights and interests.

### 中国通号客户服务绩效 CRSC Customer Service Performance

客户满意度  
Customer satisfaction  
%



投诉解决率  
Complaint solution  
%



## 夯实安全生产 Strengthening Safe Production

中国通号时刻绷紧安全生产之弦，严格遵守《中华人民共和国安全生产法》《中华人民共和国消防法》等法律法规，完善安全生产管理体系，落实安全风险防控，完善安全生产责任制，建立起安全生产工作“层层负责、人人有责、各负其责”的工作体系。

CRSC always keeps a tight grip on safety production, strictly abides by the *Work Safety Law of the People's Republic of China*, the *Fire Protection Law of the People's Republic of China*, and other laws and regulations, improves the safety production management system, implements safety risk prevention and control, and perfects the safety production responsibility system, establish a work system of "layers of responsibility, everyone has responsibility, and each has his own responsibility" for work safety.

### 安全生产管理 Safe Production Management

中国通号在各层级成立安全生产委员会，由公司副总师及以上领导和各部门负责人组成。安全生产委员会定期召开会议，研究安全生产相关事项。

CRSC has established the safety production committee at all levels, composed of deputy chief engineers and above leaders as well as department heads. The safety production committee holds regular meetings to study matters related to safety production.

### 中国通号安全生产委员会主要职责

#### Main Responsibilities of the Safety Production Committee of CRSC

贯彻落实国家有关安全生产法律法规和标准规范 Implement national laws, regulations, standards and specifications related to safety production	研究按照行业管理中涉及安全生产方针政策和法规标准，加强安全管理和科技进步等基础工作，协调解决相关问题
研究部署、指导协调公司安全生产工作 Research and deployment, guidance and coordination of company safety production work	Study and strengthen the basic work of safety management and scientific and technological progress in accordance with the principles, policies, regulations and standards related to safety production in industry management, and coordinate and solve related problems
研究制定公司安全生产工作的重大方针政策 Study, deploy, guide and coordinate the safety production of the Company	统一协调指挥公司重特大生产安全事故应急救援工作
分析安全生产形势，研究解决安全生产工作中的重大问题 Analyze the safety production situation, study and solve the major problems in safety production work	Coordinate and direct the emergency rescue work of major production safety accidents
审定和下达年度安全生产控制考核指标 Examine, approve and issue annual safety production control assessment indicators	完成上级主管部门交办的其他安全生产工作 Complete other safety production tasks assigned by the superior competent department

### 中国通号安全生产绩效

#### CRSC Safe Production Performance

指标 Indicator	单位 Unit	2021年 2021	2022年 2022	2023年 2023
累计投入安全生产资金 Total funds invested in safe production	亿元 RMB 100 million	4.32	4.2	4.08
安全事故数量 Number of safety accidents	件 Pcs	0	0	0

### 安全风险防控

#### Risk Prevention and Control of Safe Production

中国通号紧扣重大风险辨识管控和重大事故隐患排查治理两个关键环节，对安全生产实行分级分类管控，持续完善安全生产监督机制，全年开展了三次专项安全生产隐患排查大排查大整治工作，同时加大了安全生产监督检查频次和力度，各层级共组织检查 6,971 次，发现问题 9,896 项，已按要求全部整改完成，有效遏制了生产安全事故的发生；扎实推进中央企业安全管理强化年行动，深入查摆问题短板，共制定 1304 项任务清单，严格按照工作清单逐一落实，截止目前，各项任务已全部完成，全面提升了企业安全生产管理水平。

CCSC closely follows the two key links of major risk identification and control and major accident hidden danger investigation and management, implements graded and classified production safety control, continuously improves the production safety supervision mechanism, carries out three special production safety hidden danger investigation and rectification work throughout the year, and increases the frequency and intensity of production safety supervision and inspection. A total of 6,971 inspections were organized at each level, and 9,896 problems were found, which were all rectified as required, effectively curbing the occurrence of production safety accidents; Solid promotion of the central enterprise safety management to strengthen the annual action, in-depth investigation of the problem of short board, a total of 1,304 tasks list, strictly in accordance with the work list one by one, up to now, all tasks have been completed, and comprehensively improve the level of enterprise safety production management.

### 安全生产应急

#### Safe Production Emergency Response

中国通号制定《轨道交通运营设备故障应急预案》《事故灾难综合应急预案》等制度，修订完善生产安全事故应急预案 178 个，进一步完善层级清晰、职责明确的应急管理体系。截至 2023 年末，共有各类应急预案 3,258 个。

CRSC has formulated the *Emergency Preparedness Plan for Rail Transportation Operation Equipment Malfunction* and the *Comprehensive Emergency Preparedness Plan for Accident Disaster*, and revised and improved 178 emergency plans for industrial safety accidents, further improving a clear hierarchy and clear responsibilities in the emergency management system. By the end of 2023, there were 3,258 various types of emergency plans.

公司常态化开展应急演练工作。全系统结合应急救援演练工作计划，组织生产安全事故应急救援演练 819 场，参与 15,172 人次；开展从业人员自救互救技能培训 169 场，参与 4,405 人次，全面提升事故应急避险能力。

CRSC has regularly carried out emergency drills. It formulated a system-wide plan for emergency rescue drills, and organized 819 production safety accident emergency rescue drills, with 15,172 participants. It also conducted 169 training sessions on self-rescue and mutual rescue skills for employees, with 4,405 participants, comprehensively enhancing the ability to respond to emergencies and avoid risks.

### 安全教育培训

#### Safety Training

中国通号持续强化安全生产文化建设（安全生产教育培训工作），制定印发《安全生产教育培训管理办法》，落实全员安全培训教育责任。开展“安全生产月”系列活动，举办年度安全教育培训会，覆盖全体领导班子成员，切实将安全理念内化于心、外化于行。

CRSC has continuously strengthened the construction of safety production culture(education and training of work safety), and formulated and issued the *Administrative Measures for Workplace Safety Education and Training* to implement the responsibility for safety training and education for all employees. It carried out a series of activities for “Safety Production Month”, held an annual safety education and training meeting, covering all members of the leadership team, effectively internalizing and externalizing the safety concept.



中国通号开展 2023 年安全教育培训  
CRSC launches the 2023 safe production education and training

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Happier Employees
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More Mutually Beneficial Cooperation
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A Better Life

# 下篇 Part 2

## 行远自迩 成为更强大的我们 Traveling Far from Near: Becoming a Stronger CRSC



中国通号主动承担社会责任，坚定服务国家战略、服务人民美好生活需要、服务行业可持续发展，积极“碳”寻绿色发展道路、打造员工幸福家园和责任供应链、参与“一带一路”倡议、全心全意回馈社会，助力全面建设美丽中国，齐心守护美好生活。

CRSC actively assumes social responsibility, firmly serves the national strategy, the people's needs for a better life, and the sustainable development of the industry, actively seeks a green development path, creates a happy home for employees and a responsible supply chain, participates in the Belt and Road Initiative, wholeheartedly contributes to the society, helps to build a beautiful China in an all-round way, and works together to safeguard a better life.



## 更优美的环境 A More Beautiful Environment

### 全生命周期环境管理 Full Life Cycle Environmental Management

中国通号严格遵守《中华人民共和国环境保护法》《中华人民共和国节约能源法》《建设项目环境保护管理条例》等对公司运营有重大影响的法律法规，建立并持续完善公司环境保护制度，加强对重要环境因素的管理组织，减少并杜绝环境事件的发生。

CRSC strictly adheres to the *Environmental Protection Law of the People's Republic of China*, the *Energy Conservation Law of the People's Republic of China*, the *Regulations on Environmental Protection Management of Construction Projects*, and other laws and regulations that have a significant impact on company operation. It establishes and continuously improves the environmental protection policy system of the Company, strengthens the management and organization of important environmental factors, and reduces and eliminates the occurrence of environmental incidents.

报告期内，公司环保节能共计投入 2,150.44 万元，其中节能 522.05 万元，环保 1,628.39 万元。全年未发生环保节能属地行政处罚情况。截至 2023 年末，公司旗下所属企业全部通过 ISO14001 环境管理体系认证，认证率 100%。

During the reporting period, the Company invested a total of 21,504,400 yuan in environmental protection and energy conservation, with 5,220,500 yuan in energy conservation and 16,283,900 yuan in environmental protection. There was no local administrative penalties for environmental protection and energy conservation throughout the year. By the end of 2023, all subsidiaries of the Company have passed the ISO 14001 environmental management system certification, with a certification rate of 100%.

报告期内  
公司环保节能共计投入

**2,150.44** 万元

节能  
**522.05** 万元



环保  
**1,628.39** 万元

During the reporting period, the Company invested a total of 21,504,400 yuan in environmental protection and energy conservation, with 5,220,500 yuan in energy conservation and 16,283,900 yuan in environmental protection

### 环境管理架构 Environmental Management Structure

中国通号成立节约能源与生态环境保护领导小组，负责公司节约能源与环境保护总体工作。

CRSC has established a leading group for energy conservation and ecological environment protection, responsible for the overall work of energy conservation and environmental protection in the Company.

#### 中国通号节约能源与生态环境保护领导小组主要职责 Main Responsibilities of the Leading Group for Energy Conservation and Ecological Environment Protection of CRSC

贯彻落实国家有关节能环保法律法规和标准规范

Implement national laws, regulations, standards and specifications related to energy conservation and environmental protection

负责公司节能环保总体工作，研究部署、指导协调公司节能环保工作

Be responsible for the overall energy conservation and environmental protection work of the Company, researching, deploying, and guiding and coordinating the Company's energy conservation and environmental protection work

负责研究制定公司节能环保工作的重大方针政策

Be responsible for researching and formulating major guidelines and policies for the Company's energy conservation and environmental protection work

分析节能环保形势，研究解决节能环保工作中的重大问题

Analyze the energy conservation and environmental protection situation, study and solve the major problems in energy conservation and environmental protection work

审定和下达年度节能环保控制考核指标

Examine, approve and issue annual energy conservation and environmental protection control assessment indicators

研究按照行业管理中涉及节能环保方针政策和法规标准，加强节能环保和科技进步等基础工作，协调解决相关问题

Study and strengthen the basic work of energy conservation, environmental protection and scientific and technological progress in accordance with the principles, policies, regulations and standards related to energy conservation and environmental protection in industry management, and coordinate and solve related problems

负责统一协调指挥公司重特大环保突发事件应急救援工作

Be responsible for coordinating and directing the emergency rescue work of major environmental incidents

完成上级主管部门交办的其他节能环保工作

Complete other energy conservation and environmental protection work assigned by the superior competent department

## 环境管理制度保障

### Environmental Management System Guarantee

中国通号制定《节约能源与生态环境保护管理办法》，发布《节约能源与生态环境保护监督管理办法》《节约能源与生态环境保护奖惩及责任追究管理办法》《环境因素识别及评价管理办法》，进一步健全节能环保监督考核奖惩制度，规范监督管理，推动压实企业主体责任，建立节能环保长效机制。

CRSC has formulated the Management Measures on Energy Conservation and Environmental Protection, and issued the Measures for Supervision and Management of Energy Conservation and Ecological Environment Protection, Measures for Rewards, Punishments, and Responsibility Investigation for Energy Conservation and Ecological Environment Protection, and Measures for Identification and Evaluation of Environmental Factors, further improving the system for energy conservation and environmental protection supervision, standardizing supervision and management, promoting the main responsibility of enterprises, and establishing a long-term mechanism for energy conservation and environmental protection.

## 环保培训与教育

### Environmental Protection Training and Education

中国通号组织全系统开展“全国节能宣传周和全国低碳日”宣传活动，共计 33,523 人次参与活动，增强全员环保节能意识；组织举办环保与节能专业培训班，培训内容涵盖相关法律法规要求、能源数据统计、环境监测等内容；倡导绿色低碳生活方式，推广绿色办公、低碳出行、节能节约。

CRSC organized the publicity activities for National Energy-saving Publicity Week and National Low Carbon Day, with a total of 33,523 participants, aiming to raise awareness of environmental protection and energy conservation among all employees. It organized professional training courses on environmental protection and energy conservation, covering topics such as legal and regulatory requirements, energy data statistics, and environmental monitoring. It also advocated for a green and low-carbon lifestyle, promoting green office practices, low-carbon travel, and energy conservation.



通号工程局集团建设公司积极倡导绿色出行  
CRSC Engineering Group Construction Company actively advocates green travel

## 应对气候变化

### Tackling Climate Changes

气候变化是人类共同面临的挑战。中国通号重视气候变化影响，制定碳达峰行动方案，积极采取措施应对气候变化。参考气候相关财务信息披露工作组建议（TCFD）的相关建议，主动披露在应对气候变化方面的管理策略和行动进展。

Climate change is a common challenge faced by humanity. CRSC attaches great importance to the impact of climate change and has formulated the action plan for peak carbon emissions, actively taking measures to address climate change. In accordance with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), CRSC proactively discloses management strategies and progress in addressing climate change.

## 气候风险与机遇管理

### Climate Risk and Opportunity Management

中国通号基于国家政策、行业特点、自身业务特点及营运特性等多维度的考量，积极主动识别气候变化带来的风险与机遇，提升公司对于气候变化的适应能力。

Based on the multi-dimensional considerations of national policies, industry characteristics, business characteristics and operational characteristics, CRSC actively identifies the risks and opportunities brought by climate change, and enhances the Company's adaptability to climate change.

类别 Category	风险因素 Risk factors	机遇因素 Opportunity factors
实体风险 Physical risk	<p>台风、洪水、干旱、地震等自然灾害，可能会毁坏公司生产设施、办公场所，导致公司生产物资中断，间接影响作业连续性，增加防灾设施成本，带来经营损失。</p> <p>Typhoons, floods, droughts, earthquakes, and other natural disasters may damage company production facilities and office premises, leading to interruptions in the supply of company production materials, indirectly affecting operational continuity, increasing disaster prevention facility costs, and causing operating losses.</p>	<p>建立台风、暴雨等极端天气的预警和应急响应机制，密切关注天气变化和地震等极端事件。</p> <p>Establish early warning and emergency response mechanisms for extreme weather such as typhoons and heavy rain, and closely monitor weather changes and extreme events such as earthquakes.</p> <p>完善防灾救灾物资储备。</p> <p>Improve the disaster prevention and relief supplies reserve.</p> <p>购买财产相关责任保险。</p> <p>Purchase property-related liability insurance.</p>
政策与法律风险 Policy and legal risks	<p>政府部门推动节能减排，制修订应对气候变化的各项政策和法律法规，导致节能减排投入和合规运营成本增加。</p> <p>Government departments have promoted energy conservation and emission reduction, and revised various policies, laws and regulations to address climate change, resulting in increased investment in energy conservation and emission reduction and compliance operating costs.</p>	<p>关注环境相关法律法规和政策的变化，遵照执行。</p> <p>Pay attention to the changes in environmental laws, regulations and policies, and comply with and implement them.</p> <p>加大项目的环保合规审查。</p> <p>Increase the environmental protection compliance review of projects.</p>
技术风险 Technical risk	<p>“双碳”推动公司加快技术迭代，加大降碳减排的研发投入和投资力度，增加绿色转型成本。</p> <p>Carbon peak and carbon neutrality drive the Company to accelerate technological iteration, reinforce R&amp;D input and investment in carbon reduction and emission reduction, and increase the cost of green transformation.</p>	<p>提高研发能力，研究高新技术和装备，实施技能技改。</p> <p>Improve R&amp;D capability, research high and new technology and equipment, and implement skill and technology improvement.</p> <p>多使用清洁能源，增加绿电。</p> <p>Use more clean energy and increase green electricity.</p>
市场风险 Market risk	<p>更多客户倾向于使用更低碳和绿色的技术和产品，签署合同时更有更严的要求。</p> <p>More customers tend to use lower carbon and green technologies and products, resulting in more stringent requirements for signing contracts.</p>	<p>探索绿色低碳技术，构建绿色供应链，优化客户服务。</p> <p>Explore green and low-carbon technology, build a green supply chain, and optimize customer service.</p>

## 气候行动战略 Climate action strategy

中国通号聚焦“双碳”目标，制定各企业 2023 年碳达峰工作计划，将碳达峰方案分解到年度重点工作中，有序推进“双碳”重点项目的实施。围绕制造业重点产业链开展关键核心技术攻关，提升传统产业在产业分工中的地位和竞争力，加快新能源、人工智能、绿色低碳等前沿技术的研发和应用推广，大力发展数字经济，提高企业核心竞争力，进一步推动碳达峰工作扎实开展。

Focusing on the “double-carbon” goals, CRSC has formulated the carbon peak work plan for each enterprise in 2023, decomposed the carbon peak plan into the annual key work, and orderly promoted the implementation of the “carbon peaking and carbon neutrality” key projects. It carried out key and core technology research around key manufacturing industry chains, enhancing the status and competitiveness of traditional industries in the industrial division, accelerating the R&D, application and promotion of cutting-edge technologies such as new energy, artificial intelligence, green and low carbon, and vigorously developing the digital economy, improving the core competitiveness of enterprises and further promoting the solid implementation of carbon peak work.

### “双碳”科技攻关实现突破

#### Breakthrough in “double-carbon” scientific and technological research

##### • 通号建设集团长沙市建筑设计院

CRSC Construction Group Changsha Architectural Design Institute

成立绿色建筑研究中心，应用科研加生产模式推动绿色建筑向高质量发展，并从绿色建筑的土建、设备专业出发，聚焦节能增效及低碳发展目标。

Establish a green building research center, apply scientific research and production mode to promote the high-quality development of green buildings, and focus on energy conservation and efficiency improvement as well as low-carbon development goals from the civil engineering and equipment specialty of green buildings.

##### • 电缆集团

CRSC Cable Company Ltd.

中国通号电缆集团成功研发薄壁绝缘机车电缆，为标准电缆壁厚的三分之一，有效减少原材料的使用。

CRSC Cable Group has successfully developed thin-walled insulated locomotive cable, which is one-third of the standard cable wall thickness, effectively reducing the use of raw materials.

### 绿色低碳关键技术产品加速应用

#### Accelerated application of key green and low-carbon technology products

##### • 研究设计院集团

CRSC Research & Design Institute Group

开展群组运行控制包神铁路北线上道验证应用，完成群组技术在城市轨道交通领域应用方案研究。

Carry out the on-track verification and application of group operation control on the northern line of Baotou-Shenmu Railway, and complete the research on the application solution of group technology in the field of urban rail transit.

打造高效智能的货运控制系统，全面提升驼峰调车场作业效率。

Build an efficient and intelligent freight control system to comprehensively improve the operational efficiency of hump yards.

开展智能综合调度关键技术攻关，创新运输服务，提升运输效能。

Carry out research on key technologies for intelligent integrated dispatching, innovate transport services, and improve transport efficiency.

实施装备轻量化技术升级工程，数字化轨道电路等陆续落地推广应用，推动设备轻量化和节约化发展。

Implement equipment lightweighting technology upgrade projects, promote the implementation and application of digital track circuits, and promote the lightweight and economical development of equipment.

### 轨道交通主业节能降碳技术持续推广

#### Continuous promotion of energy conservation and carbon reduction technology in the main business of rail transit

在建项目采用列车运行装置节能 ATO 软件升级，实现高质量的自动驾驶，实现节省运营成本和降低能源消耗。

The ongoing project adopts energy-saving ATO software upgrades for train operation devices, achieving high-quality automatic driving, saving operating costs and reducing energy consumption.



##### • 通信信息集团

CRSC Information & Communication Group Company Ltd.

开展绿色低碳技术项目 8 项，科研投入约 1,600 万元，获取专利 30 项。

Carry out 8 green and low-carbon technology projects, with a scientific research input of about 16 million yuan, and obtain 30 patents.

开展“双碳节能及数字能源关键核心技术攻关”，实现铁路站房基础设施高效运行、智能化运维。

Carry out research on key and core technologies of double-carbon energy conservation and digital energy, and realize the efficient operation and intelligent operation and maintenance of railway station building infrastructure.

开展云计算平台关键技术研究，优化实验平台软件。

Carry out research on key technologies of cloud computing platform and optimize experimental platform software.

利用统一数据平台搭建能耗统计分析模块，实现能源消耗数据的动态统计、监测。

Use the unified data platform to build the energy consumption statistical analysis module, to achieve dynamic statistics and monitoring of energy consumption data.

### 绿色建造水平评价取得成效

#### Achievements in the evaluation of green construction level

##### • 上海工程局集团

CRSC Shanghai Engineering Group

“大运会安居保障项目”绿色建造施工水平评价成果成功申报中施企协成果，获批成都绿色施工示范项目。

The evaluation results of the green construction level of the housing guarantee project for FISU World University Games have been successfully declared as the results of China Association of Construction Enterprise Management, and the project has been recognized as a demonstration project of green construction in Chengdu.

##### • 通号建设集团

CRSC Construction Group

“湖南临武乡村振兴物流集散中心一期项目”绿色建造施工水平评价成果成功申报中施企协成果。

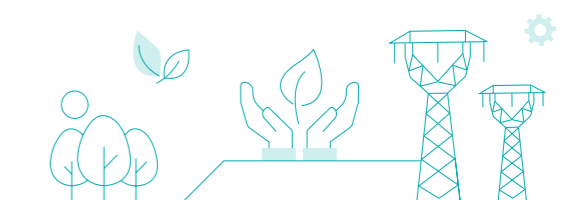
The evaluation results of the green construction level of the phase I project of the rural revitalization logistics distribution center in Linwu, Hunan have been successfully declared as the results of China Association of Construction Enterprise Management.

##### • 各工程施工企业

All engineering construction enterprises

开展公司工程建设项目绿色施工水平评价工作，推动建材减量化、循环化利用，推进超低能耗、近零能耗、低碳建筑规模化发展。

Carry out the evaluation of the green construction level of the Company's engineering construction projects, promote the reduction and recycling of building materials, and advance the large-scale development of ultra-low energy consumption, near-zero energy consumption and low-carbon buildings.



## 指标与目标 Indicator and objective

中国通号致力于采取多种措施持续减少二氧化碳等温室气体的排放。报告期内，公司万元产值（收入）温室气体排放量为 0.0183 吨，同比下降 1.6%。

CRSC is committed to taking multiple measures to continuously reduce the emissions of carbon dioxide and other greenhouse gases. During the reporting period, the Company's greenhouse gas emissions per RMB 10,000 of output value were 0.0183 tons, a year-on-year decrease of 1.6%.

报告期内  
公司万元产值（收入）温室气体排放量为

**0.0183** 吨, 同比下降 1.6%

During the reporting period, the Company's greenhouse gas emissions per RMB 10,000 of output value were 0.0183 tons, a year-on-year decrease of 1.6%



## 中国通号温室气体排放绩效 CRSC Greenhouse Gas Emission Performance

指标 Indicator	单位 Unit	2021 年 2021	2022 年 2022	2023 年 2023
温室气体排放总量 Total greenhouse gas emissions	吨 Ton	97,067	74,039	68,126
范围一温室气体排放总量 Total greenhouse gas emissions of Scope I	吨 Ton	23,487	20,730	20,181
范围二温室气体排放总量 Total greenhouse gas emissions of Scope II	吨 Ton	73,580	53,309	47,945
万元产值温室气体排放量 Greenhouse gas emissions per RMB 10,000 of output value	吨 / 万元 ton/RMB 10,000	0.0253	0.0186	0.0183

## 能源资源管理 Energy Resource Management

中国通号深知能源资源管理的重要性，积极探索绿色制造体系，推进化石能源清洁高效利用，提高水资源使用效率，促进包装材料减量化，多措并举提升能源资源使用绩效，优化资源使用效率。

CRSC is well aware of the importance of energy resource management, actively exploring green manufacturing systems, promoting the clean and efficient use of fossil energy, improving water resource utilization efficiency, promoting packaging material reduction, and taking multiple measures to enhance energy resource utilization performance and optimize resource utilization efficiency.

## 节能降耗 Energy saving and consumption reduction

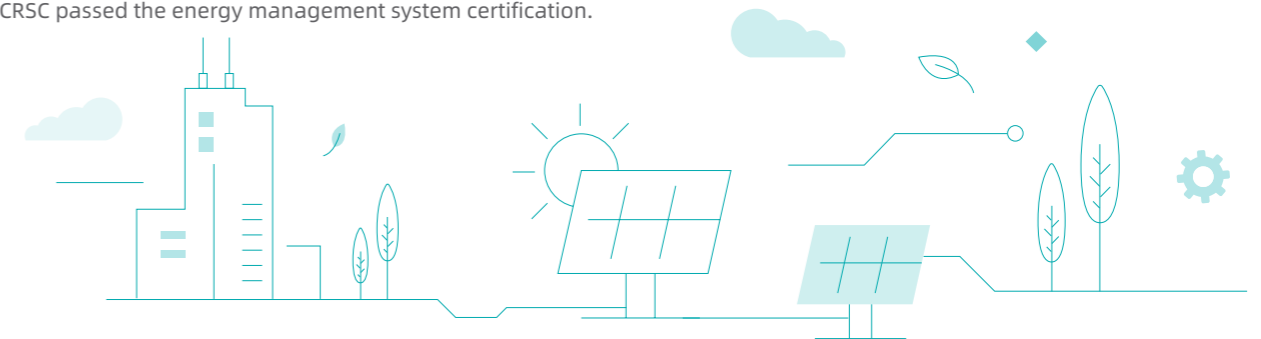
中国通号能源使用包含电力、液化气、气候、柴油、热力、天然气和电力。拟定各项能源消耗指标，加强能源统计，细化过程管理，研究降耗方法，切实减少能源消耗。截至 2023 年末，公司共有 2 家单位通过能源管理体系认证。

CRSC uses energy including electricity, liquefied petroleum gas, climate, diesel, heat, and natural gas. It establishes several indicators of energy consumption, strengthens energy statistics, refines process management, studies consumption reduction methods, and effectively reduces energy consumption. As of the end of 2023, two units of CRSC passed the energy management system certification.

截至 2023 年末  
公司单位通过能源管理体系认证

**2** 家

As of the end of 2023, two units of CRSC passed the energy management system certification.

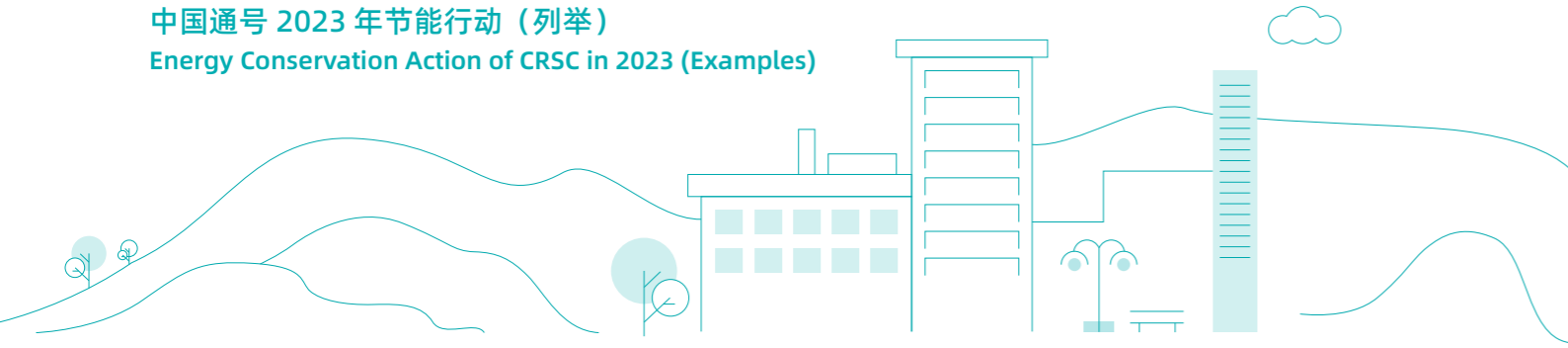


### 节能目标 Energy-saving target

通过推进光伏项目、优化产品结构、节能改造、建设能源在线监测平台等方式减少主要电力消耗，实现万元产值综合能耗进一步减少。

By promoting photovoltaic projects, optimizing product structure, energy-saving transformation, and establishing online energy monitoring platforms, CRSC reduces major power consumption and achieves further reductions in comprehensive energy consumption per RMB 10,000 of output value.

## 中国通号 2023 年节能行动 (列举) Energy Conservation Action of CRSC in 2023 (Examples)



### 推进光伏项目

#### Promoting photovoltaic projects

- 西安工业集团西信公司、津信公司光伏项目装机容量 3.6MWP。

The installed capacity of PV projects of Xixin Company and Jinxin Company of (Xi'an) Industry Group is 3.6MWP.

- 研究设计院集团北信公司光伏项目完成可行性报告的编制，计划装机量达 1.0MWP。

Beixin Company of the Research and Design Institute Group completed the feasibility report for the photovoltaic project, with a planned installed capacity of 1.0 MWP.

### 优化产品结构

#### Optimizing product mix

- 西安工业集团津信公司锁闭框采用工艺方法变更，缩短设备加工时间；将原高温运行室的 20/60 电子负载与新高温运行室的负载进行整合，提升了新高温运行室的运载率。两项举措全年降低能耗约 15.97 吨标煤。

Jinxin Company of (Xi'an) Industry Group changed the technological method of the locking frame to shorten the equipment processing time; it integrated the 20/60 electronic load from the original high-temperature operation room with the load of the new high-temperature operation room, which improves the carrying rate of the new high-temperature operation room. The two measures reduced energy consumption by about 15.97 tons of standard coal for the year.

### 加快节能改造

#### Accelerating energy-saving transformation

- 天水市有轨电车示范线工程（二期）项目绿色低碳改造工程安装改装 165 盏太阳能路灯，节省电力 24 万千瓦时 / 年。

The green and low-carbon transformation project of Tianshui Tram Demonstration Line Project (Phase II) installed and refitted 165 solar street lamps, saving 240,000 KWH of electricity per year.

- 卡斯柯壹中心信息化 IDC 机房建设，投资 425 万元，采用封闭冷技术（微模块），避免冷 / 热气流的混合，大幅降低能耗。

With an investment of 4.25 million yuan, the construction of informatization IDC computer room of Casco Company in Yi Center adopts closed cooling technology (micro-module) to avoid the mixing of cold/hot air flow, greatly reducing energy consumption.

### 提升能源管理水平

#### Improving energy management

- 西安工业集团西信公司投资 40 万元建设能耗在线监测平台，项目实现能耗在线监控。通过线上数据对比进行精细化能源分户计量，逐层分解、考核用能指标，严格管理能耗强度和碳排放强度约束性指标，合理控制能源消费总量。目前平台已基本搭建完成，预计 2024 年正式投入使用。

Xixin Company of (Xi'an) Industry Group invested 400,000 yuan to build an online energy consumption monitoring platform, and the project achieved online energy consumption monitoring. Through online data comparison, the platform can carry out refined energy household measurement, decompose and assess energy consumption indicators layer by layer, strictly manage the constraint indicators of energy consumption intensity and carbon emission intensity, and reasonably control the total energy consumption. The platform has been basically built, and is expected to be put into operation officially in 2024.

## 中国通号温室气体排放绩效 CRSC Greenhouse Gas Emission Performance

指标 Indicator	单位 Unit	2021 年 2021	2022 年 2022	2023 年 2023
电力消耗 Electricity consumption	兆瓦时 MWh	109,700	84,040.2	78,035
汽油消耗 Gasoline consumption	吨 Ton	3,800.0	4,267.5	3602.6
柴油消耗 Diesel consumption	吨 Ton	1,606.3	2,620.3	1644.7
热力消耗 Heat consumption	百万千焦 Mkj	86,601.8	47,964.4	56,821
天然气消耗 Natural gas consumption	立方米 Square meter	2,952,281.6	2,082,460	2,094,300
综合能源消耗量 Comprehensive energy consumption	吨标煤 tce	25,955	24,830	22,024
万元产值综合能源消耗量 Comprehensive energy consumption per RMB 10,000 of output value	吨标煤 / 万元 tce/RMB 10,000	0.01	0.01	0.01

## 水资源管理

### Water Resource Management

中国通号积极制定水资源管理措施，开展节水改造、废水回收等项目，提高用水效率。公司工程项目主要用水为市政用水，各工程建设企业采取施工用水、生活用水管控措施，在施工现场设置雨水收集点、循环用水装置，对水资源进行循环利用。

CRSC actively formulates water resource management measures, and carries out water conservation renovation, wastewater recycling and other projects to improve water use efficiency. The main water used in the Company's engineering projects is municipal water, and each engineering construction enterprise takes control measures for construction water and domestic water, sets up rainwater collection points and recycling water devices at the construction site, and recycle water resources.



### 节水目标 Water-saving target

提高工程项目用水效率，逐步探索制定能源消耗量化目标。

CRSC improves the water use efficiency of engineering projects and gradually explores the establishment of quantitative targets for energy consumption.

## 中国通号水资源消耗绩效

### CRSC Water Resources Consumption Performance

指标 Indicator	单位 Unit	2021 年 2021	2022 年 2022	2023 年 2023
用水量 Water consumption	吨 Ton	938,003	887,390	886,150
万元产值用水量 Water consumption per RMB 10,000 of output value	吨 / 万元 ton/RMB 10,000	0.24	0.22	0.24



## 可持续包装 Sustainable Packaging

中国通号推动包装可持续实践，优选可降解、环境友好的包装材料，持续改善包装组合，积极促进包装材料减量化，持续减少不必要的包装。建立包装材料回收机制，鼓励供应商参与回收利用，提高包装材料循环利用率。

CRSC promotes sustainable packaging practices, selects biodegradable and environmentally friendly packaging materials, continuously improves packaging combinations, actively promotes packaging material reduction, and continuously reduces unnecessary packaging. It establishes a recycling mechanism for packaging materials, encourages suppliers to participate in recycling, and increases the recycling rate of packaging materials.

### 中国通号制成品包装消耗绩效 Performance of CRSC Packing Material Consumption for Finished Products

指标 Indicator	单位 Unit	2021 年 2021	2022 年 2022	2023 年 2023
生成制造纸箱包装消耗量 Consumption for producing and manufacturing carton packaging	吨 Ton	247.5	298.9	364.12
生成制造木材包装消耗量 Consumption for producing and manufacturing wood packaging	吨 Ton	2800.9	2444.9	2485.83
生成制造塑料包装消耗量 Consumption for producing and manufacturing plastic packaging	吨 Ton	27.4	16.8	36.89
建筑工程塑料包装消耗量 Engineering plastic packaging material consumption	吨 Ton	20.9	31.1	14.2
建筑工程金属包装消耗量 Engineering metal packaging material consumption	吨 Ton	455.3	460.2	425.2
包装材料消耗总量 Total consumption of packaging materials	吨 Ton	3,552	3,251.9	3,326.24
万元产值包装消耗量 Packaging consumption per RMB 10,000 of output value	吨 / 万元 ton/RMB 10,000	0.0009	0.0008	0.0009



## 降低污染排放 Reducing Pollutant Emissions

中国通号从源头强化管控措施，重点盯控新改扩和技术改造等建设项目，做好节能评估、环境保护等预评价相关措施审查工作，严格落实“三同时”相关措施，将设计、施工和投产使用全过程风险降到最低。报告期内，公司废气、废水、噪声排放达标率分别为 100%、100%、100%，危险废弃物合格处置率达 100%。

CRSC strengthens control measures from the source, focusing on the control of construction projects such as newly modified or extended projects and technological transformation projects, conducting the review of relevant measures for pre-evaluation such as energy-saving evaluation and environmental protection, strictly implementing related measures on “simultaneous design, construction and operation”, and minimizing the risks in the whole process of design, construction and operation. During the reporting period, the Company achieved a compliance rate of 100% for emissions of waster gas, wastewater and noise, as well as a qualified disposal rate of 100% for hazardous waste.

### 废弃物减排目标 Waste reduction target

#### 对工业制造类企业

定期更换处理含挥发性有机物废气的净化装置内的废活性炭，定期委托有资质的第三方对废水、废气、噪音进行监测，污染物均达标排放，危险废物处置率达 100%。

**For industrial manufacturing enterprises:** Regularly replace the waste activated carbon in the purification device that handles volatile organic compound exhaust gas, and regularly entrust qualified third parties to monitor wastewater, waste gas and noise. All pollutants are emitted in compliance with standards, and the disposal rate of hazardous waste reaches 100%.

#### 针对工程类企业

做到“六个百分百”，切实做到不扬尘、噪声不超标、垃圾污水达标排放，创建绿色文明施工工地。

**For engineering enterprises:** Achieve “six 100%”, effectively ensuring no dust, no excessive noise, and standardized discharge of waste water and garbage, creating a green and civilized construction site.

### 通号档案 CRSC Profile

#### “六个百分百”

施工工地 100% 围挡、施工工道路 100% 硬化、土方和拆迁施工 100% 湿法作业、渣土车辆 100% 密闭运输、工地出入车辆 100% 冲洗、工地物料堆放 100% 覆盖。

**“Six 100%”:** 100% enclosure at the construction site, 100% road hardening at the construction site, 100% wet operation for earthwork and demolition and relocation, 100% sealed transportation for muck vehicles, 100% flushing of vehicles entering and exiting the construction site, 100% covering of material stacking at the construction site.

主要排放物种类 Key types of emissions	废气 Waste gas
处理措施 Treatment measures	<p>委托有资质的第三方检测机构定期进行指标检测。</p> <p>Entrust a qualified third-party testing organization to test relevant indicators on a regular basis.</p>
	<p>按照《挥发性有机物无组织排放控制标准》的要求，对生产过程中产生的挥发有机物加强治理。</p> <p>Strengthen treatment on volatile organic compounds generated during production as per the requirements of <i>Volatile Organic Compounds Unorganized Emission Control Standard</i>.</p> <p>通过安装设备防尘罩、建设洗车池、全过程覆盖易扬尘材料、洒水喷雾、道路硬化、安装扬尘监控系统、专人定期巡查等防尘、除尘、测尘措施，减少工地扬尘。</p> <p>Dust prevention, dust removal and dust measurement measures such as installation of equipment dust cover, construction of car washing pool, covering of dust-prone materials in the whole process, sprinkling spray, road hardening, installation of dust monitoring system and regular inspection by special personnel are taken to reduce dust at the construction site.</p> <p>引进高效治理设施，加装 VOCs 等废气收集处置装置。</p> <p>Introduce efficient treatment facilities and install VOCs and other devices to collect and dispose waste gas.</p>

废水 Wastewater	废弃物 Waste
<p>雨污分流，严格管控生产及生活废水排放。</p> <p>Separate rain from wastewater and strictly control the discharge of production and household wastewater.</p> <p>加大循环利用，配置污水处理系统，集中处理达标后统一排放，开展水质污染物自行监测与第三方抽检。</p> <p>Improve recycled utilization, establish the wastewater treatment system for integrated treatment and qualified discharge, and conduct self-monitoring and third-party spot checking of water pollutants.</p>	<p>实现一般工业固废分类收集、及时转移、合规处置。在施工现场推行修建建筑垃圾回收池，对部分建筑垃圾进行分类回收利用。</p> <p>Realize classified collection, timely transfer and compliant treatment of general industrial solid waste. Implement the construction waste recycling pool at the construction site to classify and recycle some of the construction waste.</p> <p>定期收集并规范处理办公垃圾、建筑垃圾、包装材料等一般废弃物。</p> <p>Collect and dispose general solid wastes in a regular and standardized manner including office waste, construction waste and packing materials.</p> <p>分区存放，由有资质的第三方妥善处理危险废弃物。</p> <p>Store in different areas and let the qualified third party treat hazardous wastes properly.</p> <p>开展全员宣传教育，推行垃圾分类。</p> <p>Undertake public propaganda and education and promote waste classification.</p>

### 中国通号废物排放绩效 CRSC Waste Emission Performance

指标 Indicator	单位 Unit	2021 年 2021	2022 年 2022	2023 年 2023
二氧化硫排放量 Sulfur dioxide emission	吨 Ton	0.023	0.022	0.0237
化学需氧量排放量 Chemical oxygen demand emissions	吨 Ton	6.78	7.71	7.73
氨氮排放量 Ammonia nitrogen emission	吨 Ton	0.656	0.649	0.672
氮氧化物排放量 Nitrogen oxide emission	吨 Ton	0.833	0.749	0.727
生产制造环节 一般废弃物排放量 Manufacturing link General waste emissions	吨 Ton	1,351.6	1,518.3	1,807.05
建筑垃圾排放量 Construction waste emissions	吨 Ton	28,753.3	17,542.0	16,147.92

指标 Indicator	单位 Unit	2021 年 2021	2022 年 2022	2023 年 2023
无害废弃物排放总量* Total harmless waste emissions*	吨 Ton	30,104.9	19,060.3	17,954.97
万元产值无害废弃物排放量 Harmless waste emissions per RMB 10,000 of output value	吨 / 万元 ton/RMB 10,000	0.0078	0.0047	0.0048
有害废弃物排放量 Hazardous waste emissions	吨 Ton	173.7	123.625	147.09
万元产值有害废弃物排放量 Hazardous waste emissions per RMB 10,000 of output value	吨 / 万元 ton/RMB 10,000	0.00004	0.00003	0.00004

注\*：公司的无害废弃物主要包括生产制造环节产生的木材、塑料、金属、纸箱等废弃物，以及工程建设环节产生的建筑垃圾。  
Note\*: The non-hazardous waste of the Company mainly includes waste such as wood, plastic, metal, paper boxes generated in the production and manufacturing process, as well as construction waste generated in the construction process.

## 保护生态环境 Protecting the Ecological Environment

中国通号在项目建设过程中充分考量对生物多样性及自然资源可能造成的影响，主动避让生态红线和环境安全底线，对因施工造成的裸土，及时覆盖砂石或种植速生草种，避免土壤侵蚀，减少对项目运营所在地的影响。报告期内，公司已竣工项目环评通过率达 100%。

CRSC fully considers the impact on biodiversity and natural resources during project construction, proactively avoids ecological red lines and environmental safety bottom lines, timely covers bare soil caused by construction with sand and gravel or plants fast-growing grass species, to avoid soil erosion and minimize the impact on the location of project operation. During the reporting period, the Company achieved a 100% EIA passing rate for completed projects.

公司充分发挥“六核一体两翼”战略中工程总承包的优势，参与实施生态保护修复重大工程、国土绿化行动、退耕还林还草工程，加强森林和草原资源保护，参与荒漠化、石漠化、水土流失综合治理，参与地方农田建设、生态保护修复工程，实施衬砌干砌排涝渠、修筑河岸护坡、改良土壤（机械深耕）、修筑砂石路及混凝土田间道路等，以增强生态碳汇。

CRSC fully leverages the advantages of the “Six Cores, One Integration and Two Bases” strategy and participates in the implementation of major ecological restoration projects, land greening action, returning farmland to forest and grassland project, and strengthens the protection of forest and grassland resources. It also participates in the comprehensive control of desertification, rock desertification, and soil erosion, as well as local farmland construction and ecological protection and restoration projects. It implements lining and dry masonry drainage channels, construction of riverbank slope protection, soil improvement (mechanical deep plowing), construction of gravel roads and concrete field roads, in order to strengthen the ecological carbon sink.



卡斯柯持续开展“守护蓝色星球”公益净滩活动  
Casco Company continues to carry out the public welfare beach cleaning activities of “Protecting the Blue Planet”

## 更幸福的员工 Happier Employees

## 建设和谐团队 Building a Harmonious Team

中国通号严格遵守《中华人民共和国劳动法》《中华人民共和国劳动合同法》等法律法规，将员工作为推动公司高质量发展的中坚力量，秉持“开放引进、精英集聚”的人才战略，保障基本权益，促进多元化队伍建设。

CRSC strictly abides by the *Labor Protection Law of the People's Republic of China*, the *Labor Contract Law of the People's Republic of China*, and other laws and regulations. It regards employees as the backbone force to promote the Company's high-quality development, adheres to the talent strategy of “stay open minded to attract all elites”, safeguards basic rights and interests, and promotes diversified team building.

### 中国通号员工构成情况 Staff Composition of CRSC

指标 Indicator	单位 Unit	2021年 2021	2022年 2022	2023年 2023	
员工总数 Total number of employees	人 Person	20,728	20,009	19,425	
按员工类型划分 By employee type	劳动合同员工 Under employment contract	人 Person	20,728	20,009	19,425
	劳务协议员工 Under labor agreement	人 Person	61	41	49
	第三方派遣员工（含劳务派遣和股东方派驻） Dispatched by third parties (including labor dispatching and shareholder dispatching)	人 Person	1,206	940	1,191
按年龄结构划分 By age structure	≥ 51 岁 ≥51 years old	人 Person	2,480	2,546	2,324
	31-50 岁 31-50 years old	人 Person	11,947	12,033	12,177
	≤ 30 岁 ≤30 years old	人 Person	6,301	5,430	4,924
按层级划分 By employee level	高级管理人员 Senior management	人 Person	259	218	302
	中层管理人员 Middle-level management	人 Person	1,158	1,001	1,098
	普通员工 Ordinary employees	人 Person	19,311	18,790	18,025
按性别划分 By gender	男 Male	人 Person	15,688	15,068	14,566
	女 Female	人 Person	5,040	4,941	4,859
按地区划分 By region	中国内陆 China Mainland	人 Person	20,624	19,912	19,340
	港澳台 Hong Kong, Macao and Taiwan	人 Person	1	1	1
	国外 Overseas	人 Person	103	96	84

## 保障员工权益

### To Protect Staff Interests

#### 合规雇佣

##### Compliance Employment

中国通号依法履行劳动合同，保护企业与员工双方的合法权益。制定《劳动合同管理暂行办法》，规定管理职责、劳动合同的订立与履行等相关内容。员工在合法、公平、平等自愿、协商一致、诚实信用的基础上签订劳动合同。报告期内，公司员工劳动合同签订率为 100%。

CRSC fulfills labor contracts in accordance with the law, protecting the legal rights and interests of both enterprises and employees. It formulates the *Tentative Measures on Labor Contract Management*, stipulating the management responsibilities, the conclusion and performance of employment contracts, and other related content. Employees sign labor contracts on the basis of legality, fairness, equality, voluntariness, consensus through consultation and good faith. During the reporting period, the employment contract signing rate of employees was 100%.

公司严格遵守工作时间的规定，确保员工正常休息、休假。改善一线职工的休息环境，及时做好防暑降温、防寒等工作。加强女性员工劳动保护，对于在经期、孕期、产期、哺乳期间的女性员工，不得安排其从事国家规定的禁忌劳动。

The Company strictly adheres to the regulations of working hours to ensure that employees have normal rest and vacation. It improves the rest environment for frontline workers, and timely carries out heatstroke prevention, cold prevention, and other work. It also strengthens the labor protection of female employees, and shall not arrange female employees during menstruation, pregnancy, childbirth, and lactation to engage in labor prohibited by national regulations.

#### 多元化与机会平等

##### Diversity and Equal Opportunities

中国通号坚持多元、平等的雇佣政策，制定《招聘管理制度》，规范招聘流程。严格禁止招用未成年人，杜绝雇佣未满 16 周岁的童工，也不支持其他公司或社会团体雇佣童工的行为。杜绝一切性别、民族、宗教、年龄等歧视现象，雇佣的所有员工都符合中国相关的法律法规所规定的年龄要求。

CRSC adheres to a diverse and equal employment policy, and formulates the *Recruitment Management System* to standardize the recruitment process. It strictly prohibits the employment of minors, eliminates the employment of child labor under the age of 16, and does not support the employment of child labor by other companies or social organizations. It also prohibits all forms of discrimination based on gender, ethnicity, religion, age, etc. All employees hired meet the age requirements specified by relevant laws and regulations in China.

报告期内  
公司员工劳动合同签订率为

100%

During the reporting period, the employment contract signing rate of employees was 100%.

#### 薪酬福利

##### Remuneration and Benefits

中国通号不断深化薪酬改革，以实现更加科学合理的分配模式，发布《中国铁路通信信号集团有限公司内部薪酬结构及策略水平指引》，对各序列人员的薪酬结构、薪酬水平、增长策略、支付策略等进行规范，对从事战略新兴产业及未来产业的科研人员给予薪酬激励，提高关键核心人才薪酬竞争力。

CRSC continues to deepen its reform to achieve a more scientific and reasonable allocation model. It has released the *Guidelines for the Internal Compensation Structure and Strategic Level of CRSC*, which standardizes the compensation structure, compensation level, growth strategy, and payment strategy of personnel in various sequences. Standardize strategies, etc., provide salary incentives to scientific researchers engaged in strategic emerging industries and future industries, and improve the salary competitiveness of key core talents. It provides compensation incentives to researchers engaged in strategic emerging industries and future industries, and enhances the compensation competitiveness of key core talents.

中国通号规范员工津贴补贴和福利管理，为员工按时足额缴纳社会保险费和补充养老保险费、补充医疗保险费及住房公积金，按照国家、地区及企业内部政策为员工卫生保健、日常生活等发放各项补贴和福利，包括独生子女费、防暑降温费、女工卫生费、体检费等。报告期内，公司员工社会保险覆盖率为 100%。

CRSC standardizes employees' allowance and subsidy and welfare management, and pays social insurance, supplementary pension insurance, supplementary medical insurance, and housing provident fund to employees in full and on time. According to national, regional, and internal company policies, various allowances and benefits are provided to employees for their health care and daily life, including the only-child allowance, heatstroke prevention subsidy, female workers' health fee, and physical examination fee. During the reporting period, the social insurance coverage rate of employees was 100%.

#### 员工民主管理

##### Employee Democratic Management

中国通号充分实施民主管理，坚持和完善以职工代表大会为基本形式的企业民主管理制度，实行厂务公开，推进民主管理，激发员工参与企业管理的热情，依法建立职工董事和职工监事制度，依法维护公司和职工合法权益，建立健全稳定的劳动关系，持续推动完善集体协商制度，通过平等协商签订《集体合同》《工资专项协议》，进一步畅通民主参与、民主管理、民主监督的有效渠道。持续开展合理化建议活动，切实增强内部活力、提高管理效能。各企业工会充分发动群众，鼓励员工为企业改革发展献计献策。报告期内，研究设计院集团荣获“全国铁路厂务公开民主管理示范单位”称号，通信信息集团及城交公司 2 家单位荣获“全国铁路厂务公开民主管理先进单位”称号。

CRSC fully implements democratic management, adheres to and improves the enterprise democratic management system with the workers' congress as the basic form, implements the openness of factory affairs, promotes democratic management, stimulates the enthusiasm of employees to and participate in enterprise management. It establishes the worker director and worker supervisor system in accordance with the law, safeguards the legal rights and interests of the Company and employees, establishes sound and stable labor relations, and continue to improve the collective consultation system. It signs the *Collective Contract and Special Agreement on Remuneration* through equal consultation, further smoothing the effective channels for democratic participation, democratic management, and democratic supervision. CRSC continues to carry out rationalization proposal activities to effectively enhance internal vitality and improve management efficiency. The labor unions of enterprises fully mobilize the masses and encourage employees to contribute ideas for the reform and development of enterprises. During the reporting period, the CRSC Research & Design Institute Group was awarded the title of "National Demonstration Unit for Railway Factory Affairs Disclosure and Democratic Management", and the CRSC Information & Communication Group and Urban Rail Transit Company were awarded the title of "National Advanced Unit for Railway Factory Affairs Disclosure and Democratic Management".



## 打造劳模品牌

### Building a Model Worker Brand

中国通号坚持弘扬劳模精神、劳动精神、工匠精神，充分发挥示范引领作用和榜样力量，激发员工创先争优。宣传推广劳模先进评选活动，积极营造让技能成才、技能立业、技能建功的先进氛围。截至 2023 年底，全系统已创建劳模创新工作室 30 个。

CRSC insists on carrying forward the spirit of model workers, labor and craftsmanship, fully leverages the demonstration and leading role and exemplary power, and inspires employees to strive for excellence. It publicizes and promotes the selection of advanced model workers, and actively creates an advanced atmosphere where skills can lead to success, careers, and contributions. As of the end of 2023, the Company has established 30 model worker innovation studios.

## 中国通号 2023 年员工荣誉 Employee Honor of CRSC in 2023

- ★ 电缆集团**  
CRSC Cable Company Ltd.

  - 尚爱民荣获国际电工委员会 (IEC) “IEC 1906 奖”  
Shang Aimin was awarded the IEC 1906 Award by the International Electrotechnical Commission (IEC)
- ★ 研究设计院集团**  
CRSC Research & Design Institute Group

  - 燕翔荣获“火车头奖章”荣誉  
Yan Xiang won the honor of “Locomotive Medal”
  - 科技部标准组荣获“火车头奖杯”“全路巾帼标兵岗”“先进女职工集体”荣誉  
The Standards Team of Technology Department won the honors of “Locomotive Trophy”, “Women’s Model Post” and “Advanced Female Worker Collective”
- ★ 通信信息集团**  
CRSC Information & Communication Group Company Ltd.

  - 研发中心视频团队荣获“火车头奖杯”荣誉  
The Video Team of the Research and Development Center won the honor of “Locomotive Trophy”
- ★ 西安工业集团**  
(Xi’an) Industry Group

  - 邓宇荣获“全国铁路机务系统劳模和工匠人才创新工作室联盟理事会理事”荣誉称号  
Deng Yu won the honorary title of “Member of the Council of National Railway Maintenance System Model Worker and Talent Innovation Studio Alliance”
  - 沈信公司电器车间调整三班荣获“全国巾帼文明岗”称号  
The No.3 Adjustment Group of Electrical Workshop of Shenxin Company was awarded the title of “National Women’s Civilization Post”
  - 津信公司工会女职工委员会获“全国铁路先进女职工组织”荣誉  
The women workers’ committee of the labor union of Jinxin Company won the honor of “National Railway Advanced Female Worker Organization”
- ★ 卡斯柯**  
Casco Company

  - 青藏项目组荣获“火车头奖杯”荣誉  
The Qinghai-Tibet project team won the honor of “Locomotive Trophy”
  - 汪小勇荣获“火车头奖章”荣誉  
Wang Xiaoyong won the honor of “Locomotive Medal”
  - 沈群辉获“全国铁路先进女职工”荣誉  
Shen Qunhui won the honor of “National Railway Advanced Female Worker”
- ★ 上海工程局集团**  
CRSC Shanghai Engineering Group

  - 晏超荣获“火车头奖章”荣誉  
Yan Chao won the honor of “Locomotive Medal”
- ★ 通号工程局集团**  
CRSC Engineering Group

  - 于丽花获“全国铁路先进女职工工作者”荣誉  
Yu Lihua was awarded the honor of “National Railway Advanced Female Worker”

## 助力员工成长 Enhancing Employee Growth

中国通号畅通员工职业发展路径，为员工给予切实可靠的帮助，为人才发展提供良好的土壤和温馨的环境。

CRSC provides a smooth career development path for employees, offering practical and reliable assistance to employees and creating a good environment and warm atmosphere for talent development.

## 锤炼人才队伍 Cultivating Talent Groups

中国通号制定发布《高技能人才培养实施方案》，设立技能提升补贴、高技能人才岗位补贴等，使员工技能提升与薪酬增长紧密关联，树立“技高者多得、多劳者多得、贡献者多得”的导向，吸引更多高潜质人才向技能人才方向发展。同时，对为技能人才培养做出突出贡献的人员进行奖励、表彰，建立促进高技能人才成长的氛围，努力培养造就更多大国工匠、高技能人才，加快推进新时代高技能人才队伍建设。

CRSC has formulated and issued the Implementation Plan for Cultivating Highly Skilled Talents, set up subsidies for skill improvement and post subsidies for highly skilled talents, closely linked employee skill improvement with salary growth, and promoted the concept of “more salaries for those with high skills, for those who work harder, and for contributors”, aiming to attract more high-potential talents to develop in the direction of skilled talents. At the same time, CRSC rewards and commends individuals who have made outstanding contributions to the cultivation of skilled talents, creates an atmosphere to promote the growth of highly skilled talents, strives to cultivate more master craftsmen and highly skilled talents, and accelerates the construction of a highly skilled talent team in the new era.

### 人才培养目标 Talent cultivation goal

到 2025 年，选拔和培育 10 位中国通号科学家、首席专家为核心的国家级领军人才队伍，100 位中国通号高级专家、战略专家和青年拔尖人才为代表的行业级高端人才，1000 位核心骨干为代表的企业级核心科技人才。从事科技创新的研发人员占从业人员比例达到 25%。

By 2025, CRSC will select and cultivate a national-level leading talent team with 10 CRSC scientists and chief experts at the core, industry-level high-end talents represented by 100 CRSC senior experts, strategic experts and young top-notch talents, and enterprise-level core scientific and technological talents represented by 1,000 core employees. R&D personnel engaged in technological innovation account for 25% of the total employees.

到 2025 年  
从事科技创新的研发人员占从业人员比例达到

**25%**

By 2025, R&D personnel engaged in technological innovation account for 25% of the total employees

## 中国通号人才队伍建设 CRSC Talent Team Construction

### 科技人才建设 Scientific and technological talent construction

以高层次人才为重点，着力建设中国通号人才高地。依托重点产业、重点项目、创新中心、博士后科研工作站和劳模创新工作室等，培养高端技术专家。

With a focus on high-level talents, efforts are made to build CRSC into a talent hub. Rely on key industries, key projects, innovation centers, postdoctoral research workstations, and model worker innovation studios to cultivate high-end technical experts.

以基层人才为基础，创新专业技术人才培养模式，坚持学习与实践相结合、培养与使用相结合，提高科技研发技术水平。

Innovate the training mode of professional and technical talents on the basis of grassroots talents, adhere to the combination of learning and practice and of cultivation and utilization, and improve the level of scientific and technological research and development.

### 干部队伍建设 Cadre team construction

完善企业领导人员考核评价体系，修订《中国通号领导班子和领导人员综合考核评价办法》并推行实施。改善企业领导人员考核评价体系，修订《中国通号领导班子和领导人员综合考核评价办法》并推行实施。

Improve the assessment and evaluation system for enterprise leaders, revise and implement the Comprehensive Assessment and Evaluation Methods for the Leadership Group and Leaders of CRSC.

加强公司总部干部队伍建设，加大与所属企业间双向挂职交流力度，推动干部有序进退留转。Strengthen the construction of the cadre team at the company's headquarters, increase two-way exchange of temporary posts with subsidiaries, and promote the orderly promotion, demotion, retention, and transfer of cadres.

### 青年干部队伍 Youth cadre team

坚持以干代训，在实践中培养和发现优秀干部，组织推荐和选拔交流挂职干部、主题教育、巡视工作人员，遴选政治素质高、业务素质好的精兵强将充实到各专项工作中。

Uphold the principle of using current cadres instead of training new ones, cultivate and discover outstanding cadres in practice, organize the recommendation and selection of exchange of temporary cadres, thematic education and inspection staff, and select cadres with high political quality and good professional quality to enrich various special work.

## 完善培训体系 Improving Training System

中国通号制定《培训管理办法》，构建“内部培训为主、外部培训为辅，制定培训计划为主、临时培训为辅，团队培训为主、个体培训为辅，管理与业务培训兼顾、按岗位设置”的差异化培训模式。以提升人才队伍素质能力为根本，以打造适应性人才队伍为重点，不断提高教育培训的针对性和实效性。

CRSC has formulated the Training Management Measures, and built the differentiated training mode of “internal training supplemented by external training, scheduled training supplemented by interim training, group training supplemented by individual training, emphasizing both management training and business training and training set as per different positions”. With the fundamental goal of improving the quality and ability of the talent team, and focusing on creating an adaptable talent team, continuously improve the pertinence and effectiveness of education and training.

报告期内，围绕重点工作制定相关培训计划，组织开展加快建设世界一流企业-跨国公司战略实践高级研讨班培训、碳达峰碳中和典型案例网络课程培训、市场经营能力培训、年度安全生产培训、国有企业人力资源管理网络培训、财务骨干人员履职能力提升培训等。

During the reporting period, CRSC formulated relevant training plans around key work, and organized and carried out training sessions such as the advanced seminar on accelerating the construction of world-class enterprises - multinational company strategic practices, network courses on typical cases of carbon peak and carbon neutrality, training on market operation capability, annual safety production training, online training on human resources management of state-owned enterprises, and training on improving the performance ability of key financial personnel.

### 中国通号培训绩效 CRSC Training Performance

指标 Indicator	单位 Unit	2021年 2021	2022年 2022	2023年 2023
高级管理人员人均培训时长 Average training time for senior management	小时 Hour	108.14	63.67	118.99
中层管理人员人均培训时长 Average training time for middle-level management	小时 Hour	57.95	52.73	104.06
普通员工人均培训时长 Average training time for ordinary employees	小时 Hour	31.23	29.57	42.05
男性员工人均培训时长 Average training time for male employees	小时 Hour	35.06	27.42	55.87
女性员工人均培训时长 Average training time for female employees	小时 Hour	28.57	23.29	36.3
高级管理人员人均培训占比 Proportion of training for senior management	%	100	88.53	97.02
中层管理人员人均培训占比 Proportion of training for middle-level management	%	90.16	93.61	95.9
基层员工培训占比 Proportion of training for grass-roots employees	%	84.93	83.99	90.45
男性员工培训占比 Proportion of training for male employees	%	86.37	85.29	90.62
女性员工培训占比 Proportion of training for female employees	%	80.65	82.19	91.95

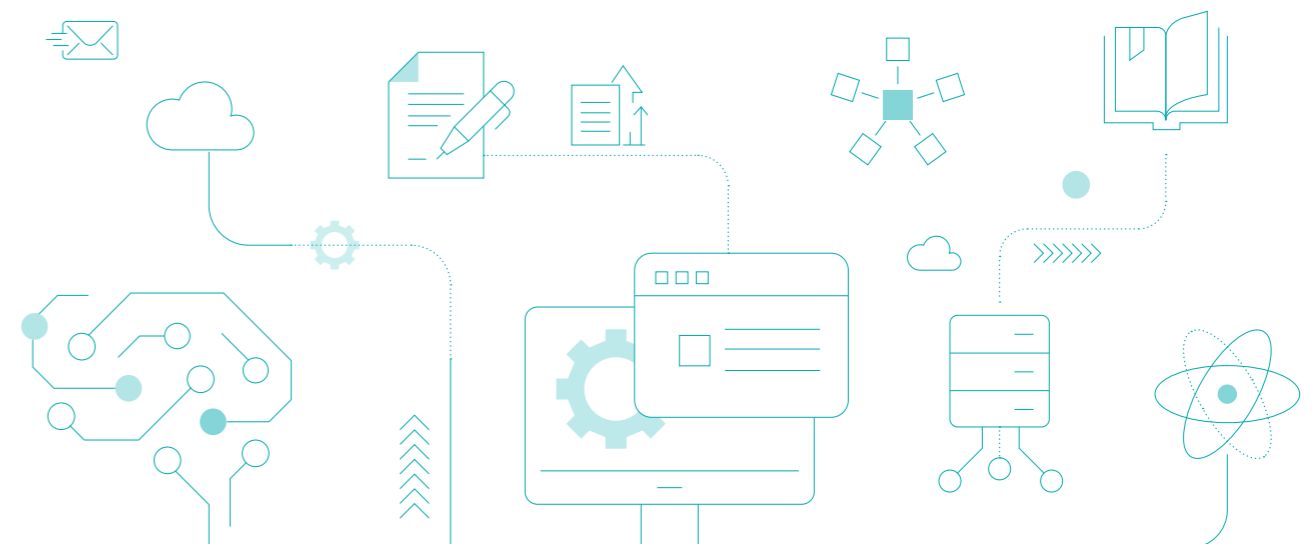
## 开展劳动竞赛 Conducting Labor Competitions

中国通号坚持以赛促学、以赛培优、以赛提质，广泛开展“比、学、赶、帮、超”为内容的劳动竞赛，通过劳动技能竞赛活动，大力弘扬劳模精神、劳动精神、工匠精神，在全系统形成榜样示范、劳动光荣、知识崇高的新风尚。

CRSC insists on promoting learning, cultivating excellent talents and improving quality through competition. It extensively carries out labor competitions with the contents of “comparison, learning, chasing, helping and exceeding”. Through labor skills competitions, it vigorously promotes the spirit of model workers, labor and craftsmen, and forms a new trend of model demonstration, glorious labor and noble knowledge throughout the Company.



西安工业集团汤瑶和许晶晶在 2023 年 IPC 手工焊接世界大赛中分获冠军和季军  
Tang Yao and Xu Jingjing of (Xi'an) Industry Group win the 1st place and the 3rd place respectively in the IPC Hand Soldering World Championship 2023



## 关心关爱员工 Caring for Employees

中国通号严格遵循《中华人民共和国职业病防治法》，不断改善员工工作环境。提供困难员工帮扶、走访慰问等多种形式的员工关爱，组织多种形式的员工活动，全方位促进员工身心健康。

CRSC strictly follows the Law of the People's Republic of China on the Prevention and Control of Occupational Diseases and constantly improves the working environment of employees. It provides various forms of employee care, such as assistance for employees in need and visits and organizes various forms of employee activities to promote the physical and mental health of employees in an all-round way.

报告期内  
检测点达标率为

100%

首次实现职业危害作业场所达标

100%

员工职业健康体检完成率为

100%

During the reporting period, CRSC conducted third-party testing of occupational hazard factors in workplaces. The compliance rate of the testing points reached 100%, achieving 100% compliance for occupational hazard workplaces for the first time. The completion rate of employee occupational health examination was 100%.

## 关注员工健康 Care for Employees' Health

### 员工职业健康 Employee Occupational Health

中国通号遵循“安全第一、预防为主、劳动保护人人有责、以人为本、全年保护”原则，致力于消除和预防劳动生产过程中可能发生的伤亡、职业病和急性职业中毒。持续加强职业病防治管理工作，建立健全职业病预防管控机制，落实职业病防治责任，完善企业职业病防治管理档案，每年定期组织体检，开展职业病危害作业人员职业健康检测。发布《人力资源部关于发放总部职工劳保用品的通知》，落实保证在岗职工的劳动保护待遇。

Following the principle of “safety first, prevention first, everyone has the responsibility for labor protection, people-oriented protection and protection throughout the year”, CRSC is committed to eliminating and preventing casualties, occupational diseases and acute occupational poisoning that may occur in the process of labor production. It continuously strengthens the occupational disease prevention and control management work, establishes a sound occupational disease prevention and control mechanism, implements occupational disease prevention and control liability, improves enterprise occupational disease prevention and control management files, organizes regular physical examinations every year, and carries out occupational health testing for workers exposed to occupational hazards. CRSC has issued the Notice of the Human Resources Department on the Distribution of Labor Protection Supplies for Headquarters Employees, to ensure the labor protection treatment of employees on duty.

公司共有职业病危害因素作业场所 124 处，涉及 200 个作业岗位，涉及职业危害作业人员 1,021 名。报告期内，公司集中开展职业病危害因素作业场所第三方检测工作，检测点达标率为 100%，首次实现职业危害作业场所 100% 达标，员工职业健康体检完成率为 100%，未发现职业病病例和职业病倾向人员。

The Company has a total of 124 workplace with occupational hazard factors, involving 200 work positions, and 1,021 workers exposed to occupational hazards. During the reporting period, CRSC conducted third-party testing of occupational hazard factors in workplaces. The compliance rate of the testing points reached 100%, achieving 100% compliance for occupational hazard workplaces for the first time. The completion rate of employee occupational health examination was 100%, and no cases of occupational diseases or individuals with occupational disease tendencies were found.

### 工作生活平衡 Balancing Work and Life

中国通号开展“书香通号”读书征文、“中国梦·通号情·劳动美”才艺视频作品征集活动、职工乒乓球比赛、电子竞技比赛等文体活动。开展员工健康义诊活动，用心用情关心关爱职工。

CRSC has launched cultural and sports activities such as the “Scholarly CRSC” literature collection event, talent show video collection event themed “Chinese Dream, CRSC Enthusiasm, Beauty of Labor”, staff table tennis competition, and e-sports competitions. It organizes free health clinic activities for employees and cares for employees with heart and soul.



通号工程局集团开展健康义诊活动  
CRSC Engineering Group Organizes free health clinic activities



通号建设集团组织篮球友谊赛  
CRSC Construction Group organizes the basketball friendship match

## 落实员工关怀 Implementing Employee Care

中国通号发布《中国通号工会关于做好职工职业生涯全过程关爱服务的实施方案》，围绕员工从入职到退休离岗期间个人重大事项开展关爱服务。持续推进“三工建设”“帮扶救助”等各项工作，组织积极开展风险排查、情绪疏导、慰问服务。关注离退休干部的身心健康，开展走访慰问、困难离退休干部帮扶、健康体检等活动。

CRSC has released the *Implementation Plan of the Trade Union of CRSC on Providing Care Services for Employees in their Whole Career Process*, providing care services for important personal matters of employees from entry into the job to retirement. It has continued to promote various work such as “construction of site life, site hygiene and site culture” (“three-site construction”) and “assistance and rescue”, and organized and actively carried out risk investigation, emotional guidance and condolence services. CRSC pays attention to the physical and mental health of retired cadres, and carries out activities such as visiting them, helping them in difficulties, and organizing health examinations for them.

报告期内，公司工会下拨 36.21 万元“三工建设”专项资金、20 万元助医助困资金，用于改善一线生产生活条件及困难职工帮扶救助。筹集“两节”送温暖资金 511.19 万元，慰问困难职工家庭 558 个，发放慰问物资 57.03 万元，慰问一线职工、劳模先进 9,863 人，一线班组 470 个，发放慰问物资 454.16 万元。开展重点项目慰问工作筹集送清凉活动资金 339.33 万元，慰问项目班组 393 个，慰问高温一线人员 1.43 万人。

During the reporting period, CRSC's labor union allocated 362,100 yuan of special funds for “three-site construction” and 200,000 yuan of medical assistance and poverty alleviation funds, to improve the living and working conditions of front-line production workers and provide assistance to workers in need. It raised 5,111,900 yuan in warm funds during the two festivals, subsidized 558 families of workers in need, distributed supplies worth 570,300 yuan, extended regards to 9,863 workers at the production line and model workers as well as 470 teams at the production line, and distributed supplies with a total worth of 4,541,600 yuan. It carried out key project visit work and raised a total of 3.3933 million yuan for sending coolness, and visited 393 project groups and 14,300 frontline workers in high temperatures.



## 更互惠的合作 More Mutually Beneficial Cooperation

### 打造责任供应链 Creating a Responsible Supply Chain

中国通号完善供应商管理体系，遵循“统一领导、分级管理、动态监控、共同发展”的供应商管理原则，建立并持续完善供应商评估和准入制度，严控供应链合作伙伴选择流程的公正性，确保采购流程合规、透明、公平、公正。

CRSC improves its supplier management system, follows the supplier management principle of “unified leadership, hierarchical management, dynamic monitoring and common development”, establishes and continuously improves the supplier evaluation and access systems, strictly controls the fairness of the selection process for supply chain partners, and ensures the procurement process is compliant, transparent, fair and just.

公司制定《供应商管理办法》《供应商信用评价管理办法》《供应商“黑名单”管理办法》。在准入环节，严格把控供应商资质审查，加强合同履行、案件纠纷、资信情况、舆情监测等方面的调查，出现异常情况时慎重纳入。优先选用绿色、低碳、节能、环保产品，如供应商存在偷工减料、以次充好、供应假冒伪劣产品，或者给企业生产经营和项目建设带来严重负面影响等任一情形的，实行“一票否决”。

The Company has formulated the Measures for the Administration of Suppliers, Measures for the Administration of Supplier Credit Evaluation, and Measures for the Administration of “Black Lists” of Suppliers. In the access link, it strictly controls the supplier qualification examination, strengthens the investigation of contract performance, case disputes, credit situation, public opinion monitoring and other aspects, and carefully considers the inclusion of suppliers when abnormal situations occur. CRSC prioritizes the use of green, low-carbon, energy-saving, and environmentally friendly products. It adopts the “one-vote veto” to suppliers who have any of the following situations: cheating on workmanship and materials, shoddy goods for quality goods, supply of counterfeit and shoddy products, or serious negative impacts on the production and operation of enterprises and project construction.

公司注重对供应商的廉洁合规管理，对合格供应商实行动态管理，定期评价，实时更新，建立完善供应商廉洁黑名单管理机制。当供应商发生“以行贿等方式，干扰采购的”和“违反廉政要求或职业道德等，被公司纪检或上级部门认定有违规违纪行为”时，属于重大不良行为，将取消其参与采购的资格。公司要求各级采购人与供应商签订廉洁协议，规范交易行为，维护公平竞争，形成阳光透明的物资供应生态。

The Company focuses on the integrity and compliance management of suppliers, implements dynamic management for qualified suppliers, conducts regular evaluations and real-time updates, and establishes a sound supplier integrity blacklist management mechanism. When suppliers engage in “bribery or other forms of interference in procurement” and “violate integrity requirements or professional ethics, as determined by the company’s disciplinary inspection or superior department”, it constitutes a serious misconduct and their qualification to participate in procurement will be revoked. The Company requires purchasers at all levels to sign integrity agreements with suppliers to regulate transaction behavior, maintain fair competition, and establish a transparent material supply ecosystem.

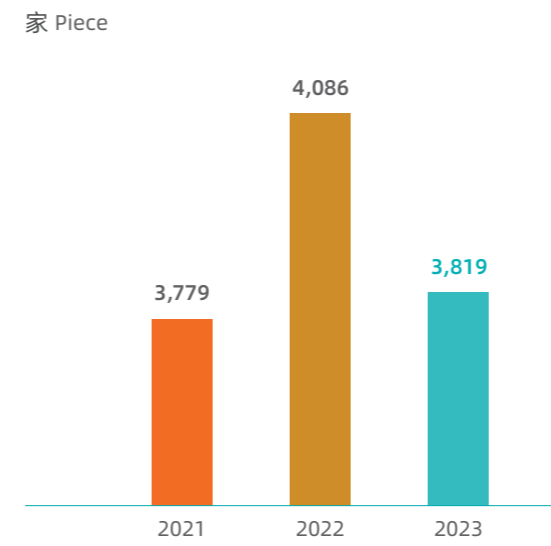
公司适时召开供方质量沟通会，积极回应供应商的困惑和诉求，提供专业指导和支持，帮助供应商优化产品和服务质量，提升经营管理能力。

CRSC holds quality communication meetings with suppliers in a timely manner, actively responds to the questions and demands of suppliers, provides professional guidance and support, helps suppliers optimize the quality of products and services, and enhances their management capabilities.

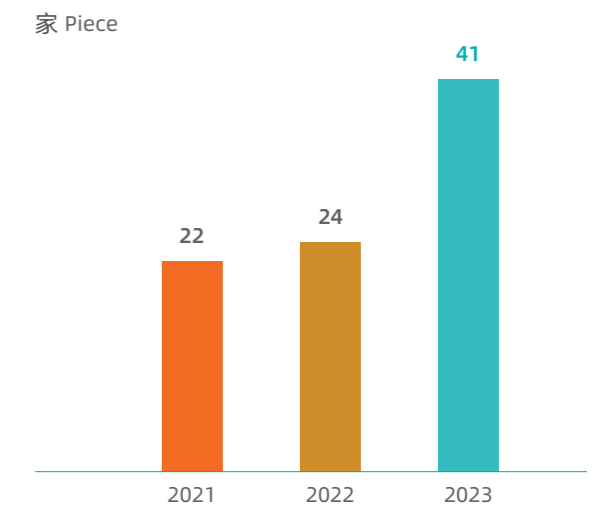
### 中国通号供应商分布情况 CRSC Supplier Distribution

指标 Indicator	单位 Unit	2021年 2021	2022年 2022	2023年 2023
中国 China	家 Piece	3,110	3,338	3,930
欧洲 Europe	家 Piece	23	16	18
北美 North America	家 Piece	8	1	7
南美 South America	家 Piece	0	0	0
大洋洲 Oceania	家 Piece	1	0	0
亚洲（除中国） Asia (except China)	家 Piece	5	1	5

### 审查的供应商数量 Number of suppliers reviewed



### 因不合规被中止合作的供应商数量 Number of suppliers whose cooperation was suspended due to non-compliance



## 深耕“一带一路” In-depth Insight into the Belt and Road Initiative

中国通号积极响应“一带一路”倡议，充分发挥“设计研发、装备制造、工程施工”全产业链“三位一体”优势，持续完善全球业务布局，推动中国高铁“走出去”。

CRSC actively responds to the Belt and Road Initiative, fully utilizes the advantages of the whole industrial chain of design and development, equipment manufacturing, and engineering construction, and continuously improves its global business layout, thus promoting China's high-speed rail to "go global".

公司深耕海外市场，与海外企业加强技术合作，加强海外员工培训，加快实现本地化发展，促进技术标准与产业输出，推动中国铁路产品、技术、标准“走出去”具有深远意义。

The Company deeply develops overseas markets, strengthens technical cooperation with overseas enterprises, enhances overseas staff training, accelerates localized development, and facilitates the export of technical standards and industries, making it of far-reaching significance to promote China's railway products, technologies and standards to "go global".

### 中国通号 2023 年境外业务重大进展（例举） Significant Progress in Overseas Business of CRSC in 2023 (Examples)

顺利签署马拉维班古拉 - 恩卡亚改造项目框架合同，独立承揽马来西亚东海岸铁路四电工程。

Successfully signed the framework contract for the railway project, the Bangula-Nkaya renovation project in Malawi, and independently undertook the project of communication, signal, power and traction power supply of the East Coast Rail Link in Malaysia.

孟中印缅经济走廊重要支撑项目——孟加拉帕德玛大桥项目顺利开通。

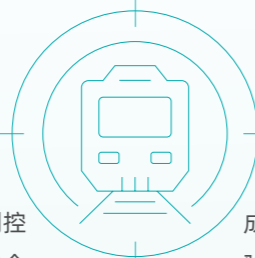
The Padma Bridge project in Bangladesh, an important support project of the Bangladesh-China-India-Myanmar Economic Corridor, was successfully opened.

中印尼雅万高铁顺利开通，自主化 CTCS-3 级列控系统已在雅万正式开通运营，实现中国高铁首次全系统、全要素、全产业链在海外落地。

The Jakarta-Bandung High-Speed Railway was put into operation smoothly, and the autonomous CTCS-3 train control system officially started operation in the Jakarta-Bandung High-Speed Railway, marking the first time that China's high-speed rail has fully implemented the entire system, total elements, and full industrial chain overseas.

成功搭建完成“亚太区域中心轨道交通控制系统实验平台”，成为中国通号继在塞尔维亚首都贝尔格莱德和匈牙利首都布达佩斯之后在海外建设的第三座列车运行控制系统实验室。

Successfully completed the Asia-Pacific Regional Center Rail Transit Control System Experimental Platform, becoming the third overseas train operation control system laboratory built by CRSC, following Belgrade, the capital of Serbia, and Budapest, the capital of Hungary.



### 中国通号境外发展绩效 Overseas Development Performance of CRSC

指标 Indicator	单位 Unit	2021 年 2021	2022 年 2022	2023 年 2023
境外公开开展项目 Overseas public projects	个 PC	16	12	26
设立境外单位 Establishment of overseas branches	户 EA	31	34	34
境外业务涉及国家（地区） Countries (regions) of the overseas businesses	户 EA	19	16	15

#### 承办塞尔维亚匈塞铁路高铁技术培训班

案例 Case

#### Hosting Budapest-Belgrade Railway High-speed Rail Technology Training Class

2023 年 8 月，上海工程局集团承办的“塞尔维亚匈塞铁路高铁技术培训班”在苏州正式开班。通过现场授课、探讨交流、实体观摩等方式，组织来自塞尔维亚的学员深入探讨高铁技术的前沿和创新，帮助学员深入了解项目技术及中国技术。

The Budapest-Belgrade Railway High-speed Rail Technology Training Class organized by SCRSC Shanghai Engineering Group officially started in Suzhou in August 2023. Through on-site teaching, discussion and exchange, physical observation and other methods, students from Serbia were organized to deeply discuss the cutting-edge and innovative high-speed rail technology, enabling them to gain a deeper understanding of project technology and Chinese technology.



## 开放合作共赢 Openness and win-win cooperation

中国通号秉持“开放创新、合作共赢”理念，深化交流合作，发挥自身行业影响力和号召力，构筑与拓展交流平台，推进高质量协同发展。

CRSC adheres to the philosophy of "openness, innovation and win-win cooperation", deepens exchange and cooperation, leverages its industry influence and appeal, builds and expands communication platforms, and promotes high-quality coordinated development.

公司积极与企业、高校、科研机构、政府等展开合作和业务交流，构建多领域、多层次、多形式的合作格局。中国通号作为 13 家联盟组成单位之一，在国铁集团的牵头下联合成立“铁路科技创新联盟”，有效聚合全社会优势资源，加快实

现我国铁路高水平科技自立自强。中国通号研究设计院集团作为 17 家发起单位之一，与丰台区等单位联合成立“北京智能装备产教联合体”，整合政府、企业、园区等各方面资源，不断加强职业教育的技能技术人才培养，促进教育链、人才链与产业链创新链有机衔接。

The Company actively engages in cooperation and business exchanges with enterprises, universities, research institutions, and governments, building a multi-disciplinary, multi-level, and multi-form cooperation framework. CRSC, as one of the 13 alliance members, jointly established the Railway Science and Technology Innovation Alliance under the leadership of China Railway, effectively aggregating the superior resources of the whole society and accelerating the realization of China's railway high-level scientific and technological self-reliance. The CRSC Research & Design Institute Group, one of the 17 initiators, jointly established the Beijing Intelligent Equipment Industry-Education Consortium with Fengtai District and other units, integrating resources from the government, enterprises, and industrial parks, continuously strengthening the cultivation of vocational education skills and technical talents, and promoting the organic connection of the education chain, talent chain, innovation chain and industrial chain.

公司积极开展行业交流，举办第三届中国铁路通信信号创新发展论坛、第六届全路计算机联锁技术交流会、第十届全路 ZPW-2000 系列轨道电路技术交流会等行业会议，打造轨道交通领域具有重要影响力的行业盛会和技术品牌，促进铁路通信信号技术进步与产业发展。

CRSC actively engages in industry exchange. It held the 3rd China Railway Communication and Signal Innovation Development Forum, the 6th Railway Computer Interlocking Technology Exchange, the 10th Railway ZPW-2000 Series Track Circuit Technology Exchange and other industry conferences, creating industry events and technology brands with significant impact in the rail transit field, promoting the technological progress and industrial development of railway communication and signal.

### 中国通号正式加入国际铁路联盟 UIC

案例 Case

CRSC officially joins the International Union of Railways (UIC)

2023 年 8 月，第 102 届国际铁路联盟 (UIC) 全体大会在法国巴黎总部召开，会上审批通过了中国通号研究设计院集团成为国际铁路联盟成员。UIC 是世界最大的非政府性铁路联合组织，旨在推动国际铁路运输的发展，促进国际合作，制定铁路相关的标准。成为 UIC 成员意味着中国通号已是世界铁路共同体的成员，标志着公司



在国际铁路标准工作中开辟了新领域，为中国标准和产品走向海外探索了新路径。

In August 2023, the 102nd General Assembly of UIC was held at the headquarters in Paris, France, where the CRSC Research & Design Institute Group was approved to become a member of UIC. UIC is the world's largest non-governmental union of railways, aiming to promote the development of international railway transportation, promote international cooperation, and formulate railway-related standards. Becoming a member of UIC means that CRSC has become a member of the World Railway Community, marking that the Company has opened up a new field in the work of international railway standards, and explored a new path for Chinese standards and products to go overseas.

## 更美好的生活 A Better Life

### 推动乡村振兴 Promoting Rural Revitalization

中国通号坚决落实党中央、国务院关于定点帮扶工作的安排部署，健全帮扶机制，充分发挥定点帮扶工作领导小组作用，以结对帮扶河南省社旗县 20 周年为契机，不断创新帮扶举措，强化帮扶力度，在助力社旗县推进脱贫攻坚成果同乡村振兴衔接上实现新突破。

CRSC resolutely implements the arrangements and deployments of the CPC Central Committee and the State Council on targeted assistance work, improves assistance mechanisms, and gives full play to the role of the leading group for targeted assistance. Taking the 20th anniversary of paired assistance to Sheqi County, Henan Province as an opportunity, it continuously innovates assistance measures, strengthens assistance efforts, and achieves new breakthroughs in supporting Sheqi County to promote the integration of poverty alleviation achievements with rural revitalization.

#### 中国通号 2023 年助力社旗县乡村振兴“成绩单”

CRSC's Rural Revitalization Deed to Help Sheqi County in 2023

指标 Indicator	单位 Unit	2023 年目标 Objectives in 2023	达成情况 Completion	年度计划完成度 Annual plan completion
投入帮扶资金 Assistance funds invested	万元 RMB 10,000	500	550	110%
引入无偿帮扶资金 Non-reimbursable assistance funds attracted	万元 RMB 10,000	10	45.5	455%
培训基层干部 The number of grassroots cadres trained	名 people	100	431	431%
培训乡村振兴带头人 Training village revitalization leaders	名 people	100	166	166%
培训专业技术人才 Training professional and technical personnel	名 people	100	220	220%
购买农产品 Agricultural products purchased	万元 RMB 10,000	150	202+	135%
帮助销售农产品 Agricultural products sold	万元 RMB 10,000	1000	2,100+	210%

## 聚焦“五大振兴” Focus on the “Five Major Revitalizations”

### 01 产业振兴 Revitalization of Industries

因地制宜扶持主导产业  
Support leading industries  
according to local conditions

- 出资 50 万元建设社旗县中国通号央企帮扶消费展示馆及京东电商云平台，有效带动周边贫困群众农产品销售等问题，得到河南省商务厅肯定，成为省级帮扶典型。

Invested 500,000 yuan to build its central enterprises' consumption-assisted exhibition hall and JD.com e-commerce cloud platform in Sheqi County, effectively boosting the sales of agricultural products for the surrounding impoverished population, which was recognized by the Henan Provincial Department of Commerce and became a model for provincial assistance.

- 出资 50 万元继续为朱集镇张磊养鸡服务专业合作社捐建配套设施及辅助设施，带动周边 40 余户分红，日用工 20 余人。

Invested 500,000 yuan to continue donating and constructing supporting facilities and auxiliary facilities for Zhang Lei Chicken Farming Service Cooperative in Zhuji Town, benefiting more than 40 surrounding households and providing daily labor for more than 20 people.

- 出资 90 万元支持朱集镇三粉加工项目，有效推动社旗县三粉产业全产业链发展，全县红薯种植面积增加至 20 万亩以上，5,000 余名种植户增收，增加就业岗位 300 个以上。

Invested 900,000 yuan to support the three-flour processing project in Zhuji Town, effectively promoting the development of the whole industrial chain of the three-flour industry in Sheqi County, increasing the county's sweet potato planting area to over 200,000 mu, with over 5,000 farmers increasing their income and more than 300 jobs created.

加大科技兴农支持力度  
Increase support for developing  
agriculture through science and  
technology

- 设立科技兴农专项基金，帮助社旗县以产业创新能力提升带动农民增收致富。先后投入 249 万元支持 7 个优势产业科技项目，推动企业技术研发和工艺创新。

Established a special fund for developing agriculture through science and technology to help Sheqi County increase farmers' income and wealth by improving its industrial innovation capability. Invested 2.49 million yuan to support 7 advantageous industrial technology projects, promoting enterprise technology R&D and process innovation.

### 02 人才振兴 Revitalization of Skilled Workforce

- 通过持续实施乡村干部人才教育培训工程、乡土人才培养工程、科技创新人才教育培训工程“三大”工程，构建分层分级分类的乡村振兴人才培养体系，多措并举助力人才振兴。

By continuously implementing the “three major” projects, namely rural cadre talent education and training project, local talent cultivation project and scientific and technological innovation talent education and training project, CRSC established a hierarchical and classified talent cultivation system for rural revitalization, and took multiple measures to support talent revitalization.

### 03 文化振兴 Revitalization of Culture

- 选取中国著名散文作家周同斌故里周庄村等一批旧址作为重点项目，帮助修缮场地，着力打造一批社会效益明显、示范带动性强的文旅融合项目。

Selected a number of old sites such as Zhouzhuang Village, the hometown of Zhou Tongbin, a famous Chinese prose writer as key projects to help renovate the sites and focus on creating a number of cultural and tourism integration projects with significant social benefits and strong demonstration effects.

- 为社旗县实验小学捐赠河南顶端新闻“顶端少年”报纸 1,000 份，丰富学生精神生活。

Donated 1,000 copies of “Dingduan Youth”, the newspaper sponsored by Dingduan News, to Sheqi County Experimental Primary School, enriching the students' spiritual life.

### 04 生态振兴 Revitalization of Ecology

- 出资 50 余万元，用于购买月季等苗木花卉和开展村镇建设，帮助美化环境，改善基础设施。

Invested more than 500,000 yuan to purchase rose and other flower seedlings and to carry out village and town construction, helping beautify the environment and improve infrastructure.

### 05 组织振兴 Revitalization of Organization

- 组织驻豫企业通号电气化局所属 6 个基层党支部与社旗县李店镇下郭村、晋庄镇晋庄村、陌陂镇街北村、下洼镇姜王庄村、潘河街道双庄村、朱集镇袁老庄村 6 个村党支部开展支部结对共建活动。

Organized 6 grassroots Party branches affiliated to the CRSC Electrification Company in Henan to carry out branch pairing and co-building activities with 6 village Party branches in Xiaguo Village of Lidian Town, Jinzhuang Village of Jinzhuang Town, Jiebei Village of Mobei Town, Jiangwangzhuang Village of Xiawa Town, Shuangzhuang Village of Panhe Sub-district and Yuanlaozhuang Village of Zhuji Town in Sheqi County.

## 健全长效机制 Improving Long-term Mechanism

### 巩固“两不愁三保障”成果

#### Consolidating the achievements of “Two Worries, Three Guarantees”

出资 65 万元用于朱集镇袁老庄村美丽乡村建设二期项目，以袁老庄村主干道为主，实施人居环境整治和建设，打造宜居宜业和美乡村。

Invested 650,000 yuan for the second phase of the beautiful village construction project in Yuanlaozhuang Village, Zhuji Town, with a focus on the main road of Yuanlaozhuang Village, to carry out the renovation and construction of the living environment and to create a livable, business-friendly and harmonious villages.

### 推进消费帮扶

#### Promoting assistance through consumption

建成河南省电商直播基地。已联合当地 100 多家企业，整合近千款优质农产品，与全国 2 万余位网络达人达成合作关系，范围覆盖辐射周边县市。

Established an e-commerce live streaming base in Henan Province. United over 100 local enterprises, integrated nearly a thousand high-quality agricultural products, and established cooperative relationships with over 20,000 Internet celebrities nationwide, covering the surrounding counties and cities.

建设“通号惠帮扶”电商平台，甄选 200 余款农产品上架销售。拓宽线上线下销售渠道，解决农产品滞销卖难问题。

Developed a self-use e-commerce platform called “CRSC Assistance”. Launched a total of more than 200 types of agricultural products, expanding online and offline sales channels to solve the problem of unsalable agricultural products.

积极参加央企消费帮扶专项活动。参与国务院国资委主办的第二届“央企消费帮扶兴农周”活动，帮助社旗县销售农产品 1,164 万元，获得帮扶全央企排名第 8 名。

Actively participated in the central enterprises consumption assistance special activities. Participated in the second “Central Enterprises’ Consumption Assistance and Agriculture Promotion Week” hosted by the SASAC of the State Council, and helped Sheqi County sell agricultural products worth 11.64 million yuan, ranking 8th in sales among all central enterprises.

### 强化科技投入

#### Increasing research inputs

打造三产融合发展的示范样本。投资 100 余万元重点围绕社旗鸡产业发展，逐渐打造出了一条以社旗县张磊养鸡服务专业合作社、河南省正全实业有限公司（风干鸡加工企业）和京源肥业（河南）有限公司为主的可循环产业全链条，撬动 2,000 余万元的发展。

Created a model for the integrated development of the primary, secondary and tertiary industries. Invested over 1 million yuan, focusing on the development of chicken industry in Sheqi County, and gradually created a full chain of recycling industries represented by Zhang Lei Chicken Farming Service Cooperative in Sheqi County, Henan Zhengquan Industrial Co., Ltd. (air-dried chicken processing enterprise) and Jingyuan Fertilizer Industry (Henan) Co., Ltd., leveraging over 20 million yuan in development.

充分发挥科技兴农杠杆效应。依托中国通号科技兴农专项基金，结合社旗县粮食、林果、畜牧、蔬菜、中药材五大支柱产业发展中亟须解决的科技需求，充分运用专项基金的杠杆效应，实施科技兴农专项 7 项，投入 249 万元，共带动企业投入 1,354 万元，实现项目效益 2,372 万元，新增利润 132 万元，转移转化科技成果 8 项，新产品 5 个，提供就业岗位 226 个。

Gave full play to the leverage effect of developing agriculture through science and technology. Relying on CRSC’s special fund for developing agriculture through science and technology, and combining with the urgent scientific and technological needs in the development of the five pillar industries of grain, forestry and fruit, animal husbandry, vegetables and Chinese medical herbs in Sheqi County, CRSC made full use of the leverage effect of the special fund to implement 7 special projects for promoting agriculture through science and technology, with an investment of 2.49 million yuan. This led enterprises to invest 13.54 million yuan, realized 23.72 million yuan in project benefits, increased 1.32 million yuan in profits, transferred and transformed 8 scientific and technological achievements, and provided 5 new products and 226 jobs.



中国通号党委书记、董事长、总裁楼齐良前往社旗县调研

Lou Qiliang, secretary of CPC, chairman, president of CRSC, goes to Sheqi County for research



中国通号党委副书记、执行董事张权到社旗县调研产业帮扶项目

Zhang Quan, deputy secretary of CPC, executive director of CRSC, conducts research on the industry assistance project at Sheqi County



国务院国资委社会责任局李军局长视察通号展台

Li Jun, director of Bureau of Social Responsibility, is inspecting the exhibition stand of CRSC

## 所属企业联合帮扶 Joint Assistance by Affiliated Enterprises

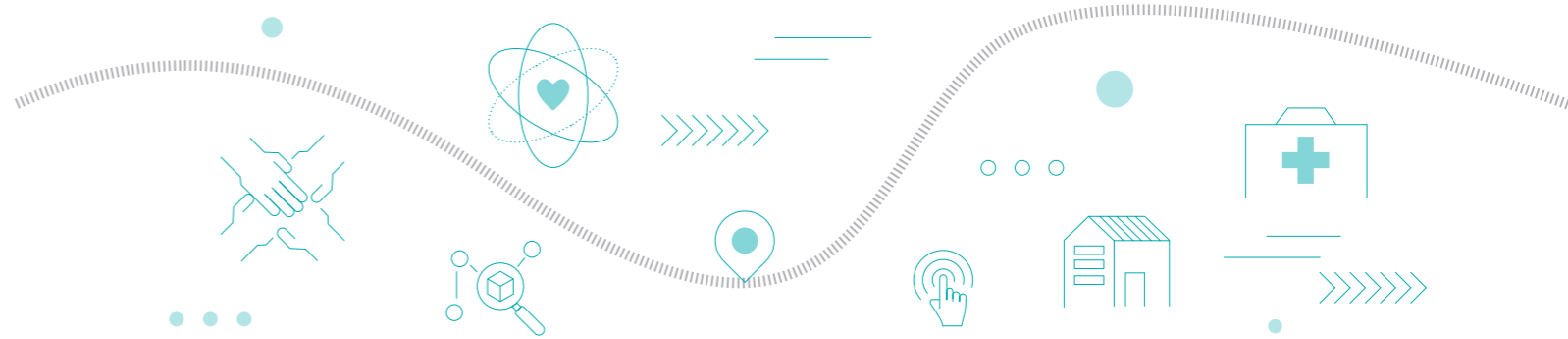
中国通号发动所属各企业广泛参与帮扶活动，着力构建热心参与、真心投入的长效帮扶协作机制，在乡村振兴工作办公室内设八个专项保障组，根据帮扶内容由总部相关职能部门、所属企业牵头保障，进一步压实责任，以“双向奔赴”推动帮扶地区跑出“乡村振兴”加速度。

CRSC has mobilized its subsidiaries to actively participate in assistance activities, focusing on building a long-term support and cooperation mechanism with enthusiastic participation and sincere dedication. Within the office of rural revitalization, it has established eight special guarantee groups, with the headquarters' relevant functional departments and subsidiaries taking the lead in ensuring assistance according to the content of assistance, further strengthening responsibilities, and promoting the acceleration of rural revitalization in the assisted areas through two-way efforts.

## 倾心志愿服务 Dedicating Voluntary Services

中国通号持续开展覆盖面广、形式多元的志愿服务行动，扩大“同心筑梦”志愿服务品牌效应，成立“青年突击队”“应急支援组”，开展抢险救灾、助学敬老、关爱慰问等公益活动，为杭州亚运会和上海进博会提供轨道交通维护保障，贡献青春力量，积极回馈社会。

CRSC continues to carry out volunteer service actions with wide coverage and diverse forms, expanding the brand effect of the “Dream-building” volunteer service. It has established the “Youth Commando” and “Emergency Support Team” to carry out public welfare activities such as rescue and disaster relief, helping students and caring for the elderly, and caring and condolence, provide rail transit maintenance guarantee for Hangzhou Asian Games and Shanghai-based China International Import Expo (CIIE), contribute youth strength and actively give back to society.



中国通号志愿者服务团队在体育馆周边地铁站、公交站开展亚运期间游客引导志愿服务，同时监控轨道交通各专业设备运行情况，保证设备维护工作更高质高效进行

CRSC volunteer service teams provided volunteer service for tourists during the Asian Games at subway stations and bus stations around the venues. At the same time, they monitored the operation of various professional equipment of rail transit to ensure high quality and efficient equipment maintenance work



通号建设集团青年突击队全力保障云南省安宁市火灾救援一线物资供应

The youth commandos of CRSC Construction Group are fully committed to ensuring the supply of materials for fire rescue operations in Anning City, Yunnan Province



西安工业集团津信公司开展“爱心义剪”

Jinxin Company of (Xi'an) Industry Group launches “volunteer haircuts”



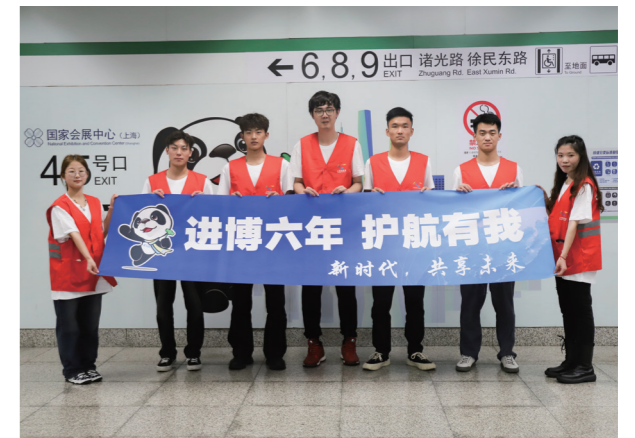
通号工程局集团成立应急救援抢险队、调派抢险车，开展丰沙铁路援抢险工作。

CRSC Engineering Group has established an emergency rescue team and dispatched rescue vehicles to carry out rescue and repair work on the Fengtai-Shacheng Railway



研究设计院集团测试团支部联合怡海花园社区志愿服务队深入社区，开展控烟宣传活动

The Testing Team Branch of the CRSC Research & Design Institute Group unites with the Yihai Garden Community Volunteer Service Team to conduct a tobacco control publicity campaign in the community



上海工程集团志愿者团队连续六年为进博会提供问路指引、咨询引导、困难帮扶等服务

The volunteer team of CRSC Shanghai Engineering Group provides services such as direction guidance, consultation and guidance, and difficulty assistance for the CIIE for six consecutive years

# 未来展望 Future Outlook

龙腾山海，共启新程。2024 年是新中国成立 75 周年，是实施“十四五”规划的关键一年。在以习近平同志为核心的党中央坚强领导下，中国通号将聚焦高质量发展中心任务，发挥创新与改革“双轮驱动”作用，坚持把绿色低碳发展理念完整、准确、全面贯彻到公司改革发展全过程和各领域。把建设以轨道交通为特色、系统技术全球领先、综合实力世界一流的产业集团的伟大事业推向前进，共赴一个美好而崭新的 2024！

Embarking on a new journey. The year 2024 marks the 75th anniversary of the founding of the People's Republic of China and is a critical year for the implementation of the 14th Five-Year Plan. Under the strong leadership of the CPC Central Committee with Comrade Xi Jinping at its core, CRSC will focus on the central task of high-quality development, play the dual-drive role of innovation and reform, and adhere to the complete, accurate, and comprehensive implementation of the green and low-carbon development concept in the whole process and various fields of company reform and development. It will push forward the great cause of building an industrial group with rail transit as its characteristic, world-leading system technology and world-class comprehensive strength. Let's embark together on a bright and promising journey in 2024!



## 围绕一条主线

### Focus on a main line

聚焦高质量发展中心任务，以供给侧结构性改革为主线，开辟发展新赛道、培育增长新动能、塑造产业新优势。

Focus on the central task of high-quality development, take supply-side structural reform as the main line, open up new tracks for development, cultivate new growth drivers, and shape new industrial advantages.

## 增强两个动力

### Enhance two drivers

发挥创新与改革“双轮驱动”作用，加强市场创新、科技创新、管理创新，用好以改革促发展这个关键一招。

Play the dual-drive role of innovation and reform, strengthen market innovation, technological innovation, and management innovation, and make good use of reform-driven development as a key strategy.

## 聚力攻坚三大任务

### Unite efforts to tackle three major tasks

实现战略性新兴产业突破、推动传统产业转型升级、控制不发生重大经营风险。

Make breakthroughs in strategic emerging industries, promote the transformation and upgrading of traditional industries, and prevent major business risks.

## 抓好八个着力

### Put forth effort to eight key areas

着力加速产业转型，着力推动市场创新，着力强化科技创新，着力推动改革深化，着力巩固安全态势，着力加强运营管控，着力防范风险挑战，着力加强党的领导、党的建设。

Efforts are made to accelerate industrial transformation, promote market innovation, strengthen technological innovation, deepening reform, consolidate the security situation, enhance operation management and control, prevent risks and challenges, and strengthen the leadership and construction of the Party.

# 附录 Appendix

## ESG 指标索引 HKEX ESG Reporting Guide

指标披露 General Disclosures and KPIs		页码 Page No.
<b>范畴：环境 A: Environment</b>		
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A1.2	直接 (范围 1) 及能源间接 (范围 2) 温室气体排放量 (以吨计算) 及 (如适用) 密度 (如以每产量单位、每项设施计算) Direct (scope 1) and indirect energy (scope 2) of greenhouse gas emissions (in tons) and, where appropriate, intensity (e.g. per unit of production volume, per facility)	P58
A1.3	所产生有害废弃物总量 (以吨计算) 及 (如适用) 密度 (如以每产量单位、每项设施计算) Total hazardous waste produced (in tons) and, where appropriate, intensity (e.g. per unit of production volume, per facility)	P65
A1.4	所产生无害废弃物总量 (以吨计算) 及 (如适用) 密度 (如以每产量单位、每项设施计算) Total non-hazardous waste produced (in tons) and, where appropriate, intensity (e.g. per unit of production volume, per facility)	P65
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指标披露 General Disclosures and KPIs		页码 Page No.
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指标披露 General Disclosures and KPIs		页码 Page No.
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指标披露 General Disclosures and KPIs		页码 Page No.
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# 评级报告

## 《中国铁路通信信号股份有限公司 2023 环境、社会及管治报告》评级报告

受中国铁路通信信号股份有限公司委托，“中国企业社会责任报告评级专家委员会”抽选专家组成评级小组，对《中国铁路通信信号股份有限公司 2023 环境、社会及管治报告》（以下简称《报告》）进行评级。

### 一、评级依据

中国社会科学院《中国企业社会责任报告指南（CASS-ESG 5.0）》暨“中国企业社会责任报告评级专家委员会”《中国企业社会责任报告评级标准（2023）》。

### 二、评级过程

1. 评级小组审核确认《报告》编写组提交的《企业 ESG 报告过程性和可及性评估资料确认书》及相关证明材料；
2. 评级小组对《报告》编写过程及内容进行评价，拟定评级报告；
3. 评级专家委员会副主席、评级小组组长、评级小组专家共同签署评级报告。

### 三、评级结论

过程性 (★★★★☆)

公司成立报告编制工作组，由党群工作部牵头协调、具体统筹报告编制工作，党委会、董事会把控报告内容、整体方向并负责报告终审；将公司报告定位为提高 ESG 管理水平、披露信息、强化与利益相关方沟通的主要工具，功能价值定位明确；结合国家宏观政策、行业对标分析、公司重大事项、国内外 ESG 标准等识别实质性议题；计划通过官方网站发布报告，并将以印刷品的形式呈现报告，过程性表现领先。

实质性 (★★★★★)

《报告》系统披露了完善 ESG 治理、服务国家战略、节约能源和资源、产品技术创新、减少“三废”排放，应对气候变化、产品质量管理、员工健康与安全、可持续供应链等所在行业关键性议题，叙述详细充分，具有卓越的实质性表现。

完整性 (★★★★★)

《报告》主体内容从“上篇：臻于至善·打造更智慧的通号”“下篇：行远自迩·成为更强大的我们”等角度系统披露了所在行业核心指标的 90.20%，完整性表现卓越。

平衡性 (★★★★★)

《报告》披露了“腐败相关诉讼事件”“安全事故数”“环保节能属地行政处罚”“客户投诉”“产品回收”“职业病例”等负面数据，平衡性表现卓越。

可比性 (★★★★★)

《报告》披露了“年度研发投入”“新增授权专利”“产品合格率”“综

合能源消耗量”等 100 个关键指标连续 3 年的对比数据；通过“轨道交通行业内首个获得产业技术基础公共服务平台的企业”“帮助全央企排名第 8 名”等指标进行横向比较，可比性表现卓越

可读性 (★★★★★)

《报告》创新采用“上篇”“下篇”的特色框架结构，框架结构清晰，重点议题突出，回应了利益相关方的期望与诉求；报告封面采用矢量风格，融入主营业务元素，篇章页嵌入叙述性引言和对 SDGs 的回应，增添了报告的辨识度与易读性；设置 ESG 年度荣誉，系统展示企业 ESG 年度工作亮点；以“通号档案”形式对专有名词进行解释；报告整体风格简约大气，图片美观、科技感强，可读性表现卓越。

可及性 (★★★★☆)

《报告》是中国通号发布的第四份 ESG 报告，与年报发布时间间隔预计在 1 个月以内；拟在公司官网、交易所网站挂网发布，并利用官微等社交渠道传播；可通过网络搜索下载、邮寄等渠道获取报告，可及性表现领先。

综合评级 (★★★★★)

经评级小组评价，《中国铁路通信信号股份有限公司 2023 环境、社会及管治报告》为五星级，是一份卓越的企业 ESG 报告。



中国通号环境、社会及管治报告连续第四年获得五星级评价

### 四、改进建议

1. 强化内外利益相关方参与深度，进一步提高报告过程性管理；
2. 扩展报告的获取方式，进一步提升报告的可及性。

评级专家委员会副主席

王志轩

评级小组组长 评级小组专家

张青

出具时间：2024 年 3 月 21 日



扫码查看企业评级档案

# Rating Report

## Rating Report of “The 2023 Environment, Social and Governance Report of China Railway Signal & Communication Co., LTD.”

Upon the request of China Railway Signal & Communication Co., LTD., the Chinese Expert Committee on CSR Report Rating invited experts to form a rating team to rate *The 2023 Environment, Social and Governance Report of China Railway Signal & Communication Co., LTD.* (hereinafter referred to as “the report”).

### I. Rating Criteria

*Guidelines on China's Corporate Social Responsibility Reports (CASS-ESG 5.0)* by Chinese Academy of Social Sciences, and *Rating Standards on China's Corporate ESG Reports (2023)* by the Chinese Expert Committee on CSR Report Rating.

### II. Rating Process

1. The Rating Panel reviews and confirms *ESG Report Process and Accessibility Materials Confirmation* and supporting documents submitted by the CSR Report Compiling Group;
2. The Rating Panel assesses the preparation process and contents of CSR Report, and drafts the Rating Report;
3. Vice Chairman of China Expert Committee on CSR Report Rating, the Leader and experts of the Rating Panel jointly review and sign the Rating Report.

### III. Rating Results

Process (★★★★☆)

The company established a report preparation working group, which was led and coordinated by the party-mass work department, the Party committee and the board of directors controlled the content and overall direction of the report, and were responsible for the final review of the report. The report is positioned as an important tool for raising the ESG governance level, complying with disclosure of responsibility information, and strengthening stakeholder communication. In combination with national macro policies, industry benchmarking, significant issues of the company, international and domestic ESG standards, etc., substantive issues are identified. The report is planned to be published through the official website and will be presented in print form, with leading performance in process.

Materiality (★★★★★)

The report systematically discloses key issues in the industry, such as improving ESG governance, serving national strategies, saving energy and resources, product technology innovation, reducing the emission of wastewater, waste gases and residues, tackling climate change, product quality management, employee health and safety, and sustainable supply chain, with sufficient detailed description and excellent materiality performance.

Integrity (★★★★★)

The main body of the Report systematically disclosed 90.20% of the core indicators of the industry from the perspectives of “Part 1: Attaining Excellence: Building a Smarter CRSC”, “Part 2: Traveling Far from Near: Becoming a Stronger CRSC”, with excellent integrity performance.

Balance (★★★★★)

The report disclosed the negative data, including “corruption-related litigation events”, “number of safety accidents”, “local administrative penalties for environmental protection and energy conservation”, “customer complaints”, “product recall”, “occupational diseases”, with excellent balance performance.

Comparability (★★★★★)

The report disclosed the comparative data of 100 key indicators for three consecutive years, such as “annual R&D investment”, “new authorized patents”, “comprehensive energy consumption”. Through the horizontal comparison of “the first enterprise in the rail transit industry to obtain such a platform” and “the total amount of

agricultural products purchased from poverty-stricken areas ranks 8th among central enterprises”, with excellent comparability performance.

Readability (★★★★★)

The report innovatively adopted the characteristic frame structure of “Part 1”, “Part 2”. The frame structure is clear and the key issues are prominent, which responds to the expectations and demands of stakeholders; the cover design adopted the vector style, fully integrates the main industry elements, the chapter pages embed narrative quotes and responses to the SDGs, which significantly enhances the readability of the report, with excellent readability performance; set up 2023 ESG honor exhibition, demonstrating the annual ESG work highlights; set up CRSC Profile, in order to explain the technical terms. The overall style of the report is simple and atmospheric, the pictures are beautiful, and the sense of technology is strong, with good innovativeness performance.

Accessibility (★★★★☆)

The report is the 4th ESG report released by China Railway Signal & Communication Co., LTD., and the annual report is expected to be released within one month. It will be published on the company's official website and exchange website, and spread through social channels such as official wechat. The report can be obtained through Internet search, download, mail and other channels, with good innovativeness performance.

Overall Rating (★★★★★)

*The 2023 Environment, Social and Governance Report of China Railway Signal & Communication Co., LTD.* was rated as five stars by the rating team. It is an excellent corporate ESG report.



*The Environment, Social and Governance Report of China Railway Signal & Communication Co., LTD.* gained the five-star evaluation for a fourth consecutive year.

### IV. Improvement Suggestions

1. Strengthen the participation depth of internal and external stakeholders, and further improve the reporting process management;
2. Expand the ways of obtaining the report, to further improve the accessibility of the report.

评级专家委员会副主席

王志轩

评级小组组长 评级小组专家

张青

出具时间：2024 年 3 月 21 日



扫码查看企业评级档案

## 意见反馈 Feedback



尊敬的读者，您好：

Dear readers,

非常感谢您在百忙之中阅读《中国铁路通信信号股份有限公司 2023 年度环境、社会及管治报告》。为持续改进中国通号环境、社会及管治工作，我们希望聆听您的意见和建议，请您在百忙之中扫描下方二维码，对我们的报告提出宝贵意见。

Thank you very much for reading *the 2023 Environmental, Social and Governance Report of China Railway Signal & Communication Co., Ltd.* during your busy schedule. In order to constantly improve CRSC's environmental, social and governance work, we sincerely hope to get your comments and suggestions regarding this report and our work as well. Please scan the QR code below to offer your constructive comments and suggestions. Thanks for your time and patience!



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