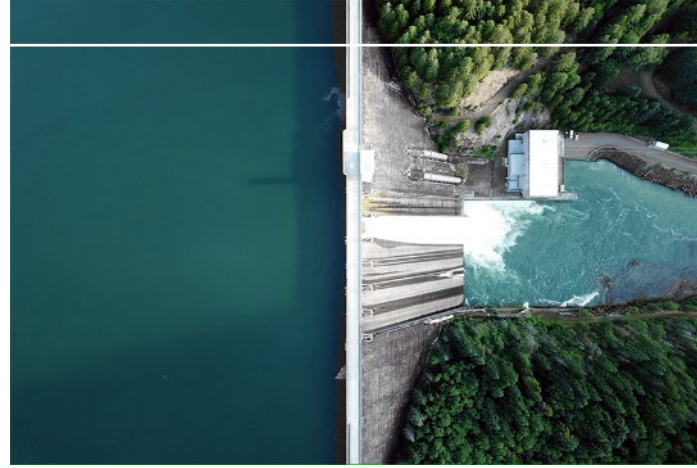


CMR»
an Amphenol company



CMR GROUP

Mastering Complexity

驾驭复杂

CMR has **more than 60 years' experience** in designing, manufacturing and delivering advanced solutions.

CMR在设计、制造和提供先进解决方案方面拥有**超过60年的经验**。

AN AMPHENOL COMPANY SINCE 2023
2023年加入安费诺集团



4 main manufacturing sites
4大主要生产基地



11 facilities worldwide
11处全球分支机构



1000 + employees
1000余名员工



€100 million in revenue
近8亿元人民币年营收



CMR GROUP

Markets

市场领域

WIRING
SYSTEMS
布线系统

HHP
Engine
大马力发动机



Rail
铁路



Defense
国防



ELECTRONICS
& SENSORS
电子&传感器

HHP
Engine
大马力发动机



Nuclear
核电



Navy
海军装备



POWER
SOLUTIONS
电源解决方案

Offshore
海上离岸平台



Marine
船舶



Hydro
水力发电



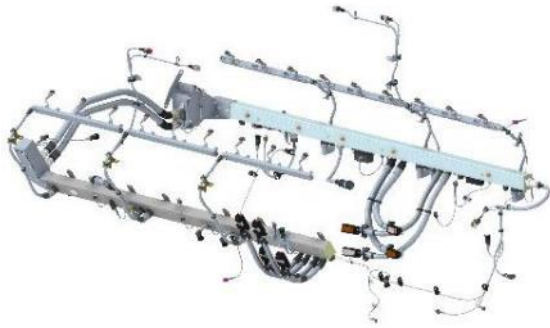
CMR GROUP

3 business units

3个业务单元

WIRING SYSTEMS

线束系统



Specialist in designing and manufacturing wiring harnesses for harsh environments
专注于严苛环境下线束系统的设计与制造

ELECTRONICS & SENSORS

电子与传感器



Sensor and electronic module design, qualification and serial production for demanding applications
面向高要求应用的传感器与电子模块设计、认证及量产

POWER SOLUTIONS

电源解决方案



Turnkey solutions and after-sales service for monitoring, control and supervision
提供监测、控制与监管领域的交钥匙解决方案及售后服务

NUCLEAR

核能领域



NUCLEAR CMR Group CMR集团

CMR is your trusted partner for instrumentation and system control in the nuclear industry.

CMR集团，您在核工业领域值得信赖的仪器和系统控制合作伙伴。

Present in more than 100 power plants worldwide, we offer a wide range of temperature sensors and monitoring solutions designed to meet the industry's strictest requirements.

我们为全球100余座核电站提供全系列温度传感器及监测解决方案，满足行业最高标准。

*Reliable and innovative solutions
for a safe nuclear future.*

以可靠与创新技术，护航核能安全未来。

OUR COMMITMENTS

我们承诺



Ensuring the safety of installations
保障设施安全



Optimizing performance & sustainability
优化效能与可持续性发展



Making nuclear safety our priority
将核安全作为首要任务



Supporting our clients
全力支持客户需求

NUCLEAR

Our strengths

核心竞争力



Recognized Presence

行业认可

Historical presence: our products have been installed in all French nuclear power plants since their construction. More recently, we have been involved in HPC projects to address new challenges (EPR).

历史积淀: 自法国核电站建设之初, 我们的产品已应用于全法所有核电站; 近年来, 面对新兴挑战我们参与了HPC项目 (欧洲压水堆, EPR)。

Global presence with equipment in over 100 nuclear sites (India, China & Europe...).

全球布局: 设备覆盖全球100余个核设施 (印度、中国、欧洲等)。

Key player in the development of new nuclear technologies (EPR 2, SMR/AMR, fusion)

技术先锋: 引领新一代核技术研发 (EPR 2、小型模块化堆/先进模块堆、核聚变)。



Advanced Expertise and Engineering

专业能力

Tailor-made solutions adapted to critical environments.

定制化解决方案 专为极端工况环境设计。

Comprehensive project management and personalized support.

全周期项目管理 与个性化技术支持。



Compliance and Durability

合规与可持续

High-performance and qualified equipment.

高性能 合规设备。

Long-term performance throughout the lifecycle of power plants.

贯穿核电站运营周期的**全生命周期性能保障**。



Nuclear Safety

核安全

Nuclear safety culture: CMR is ISO 19443 certified and has implemented a policy to combat CFS (Counterfeit / Fraudulent / Suspicious items).

核安全文化: CMR通过ISO 19443核能质量管理体系认证*, 并制定CFS (假冒/欺诈/可疑物料) 零容忍政策。

NUCLEAR

Our services

我们的服务



01. Study & Conception
研发与设计
02. Product Qualification
产品认证
03. Manufacturing
生产制造
04. Intervention & Commissioning
调试与投产
05. After-sales support
售后支持
06. Obsolescence Management Support
技术迭代支持

NUCLEAR

Our skills

技术实力

OUR TECHNICAL EXPERTISE

技术专长

- ✓ Instrumentation 仪表系统
- ✓ Electricity 电力工程
- ✓ Automation & Control systems
自动化与控制系统
- ✓ Data acquisition, monitoring & supervision
数据采集、监测与监控系统
- ✓ System integration 系统集成
- ✓ Communication network 通信网络
- ✓ On-site intervention 现场运维支持

OUR COMMITMENT

我们的承诺

- ✓ Supply Chain 供应链管理
- ✓ Quality management adapted to nuclear requirements
符合核能标准的质量管理
- ✓ Planning 项目规划
- ✓ Project management providing clients with access to all information
透明化项目管理
- ✓ Installation, commissioning & technical support
安装调试与技术支持
- ✓ Nuclear safety culture 核安全文化



NUCLEAR

Our sensors

我们的传感器

CMR, your trusted partner for qualified sensors dedicated to nuclear power plants.

CMR, 您值得信赖的合格核电站传感器合作伙伴。

AN



Measurement of fluid
temperature under pressure
带压流体温度测量

AMB



Measurement of ambient
temperature
环境温度测量

BC & BS



Bearing temperature
measurement for all types
of rotating machines
全部旋转机构轴承温度测量

CTP



Surface temperature
measurement
表面温度测量

NUCLEAR

Our sensors

我们的传感器

Aθ

Recommended for the measuring of fluid temperature
under pressure mounted in thermowell.

推荐用于安装在温度计套管中的带压流体温度测量。

- RTD 4-wires (or 2 × 4-wires)
四线制电热阻温度检测器 (RTD) (或 2 × 四线制)
- Or, Thermocouple K type simplex or duplex
或, 单路/双路 K 型热电偶
- Measuring range: 0-400°C 测量范围: 0-400°C
- Classification: AIP-NC, K3 & K3ad according to RCC-E 2012

分类: 根据 RCC-E 2012 标准, 符合 AIP-NC、K3 及 K3ad



NUCLEAR

Our sensors

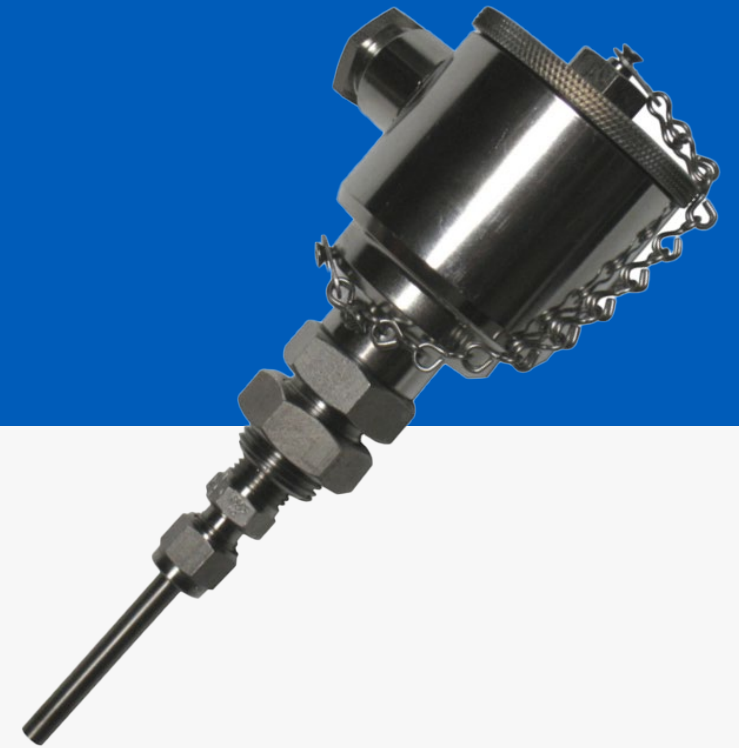
我们的传感器

A S D

Recommended for the measuring of Air temperature on HVAC system or ventilation duct

推荐用于暖通空调（HVAC）系统或通风管道中的空气温度测量

- RTD 4-wires (or 2 × 4-wires)
四线制热电阻温度检测器（RTD）（或 2×四线制）
- Measuring range: -35°C/+120°C
测量范围：-35°C 至 +120°C
- Classification: AIP-NC, K3 & K3ad according to RCC-E 2012
分类：根据 RCC-E 2012 标准，符合 AIP-NC、K3 及 K3ad



NUCLEAR

Our sensors

我们的传感器

BC & BS

Recommended for the measuring of bearing temperature on rotating machine

推荐用于旋转机构的轴承温度测量

- RTD 4-wires (or 2 × 4-wires)
四线制热电阻温度检测器 (RTD) (或 2×四线制)
- Or, Thermocouple K type simplex or duplex
或, 单路/双路 K 型热电偶
- Measuring range: 0-200°C
测量范围: 0-200°C
- Classification: AIP-NC, K3 & K3ad according to RCC-E 2012
分类: 根据 RCC-E 2012 标准, 符合 AIP-NC、K3 及 K3ad



NUCLEAR

Our sensors

我们的传感器

CTP

Recommended for the measuring of surface temperature
用于表面温度的测量

- RTD 4-wires (or 2 × 4-wires)
四线制热电阻温度检测器 (RTD) (或 2×四线制)
- Or, Thermocouple K type simplex or duplex
或, 单路/双路 K 型热电偶
- Measuring range: 0-400°C
测量范围: 0-400°C
- Classification: AIP-NC
分类: 符合 AIP-NC



NUCLEAR

Our monitoring systems

监测系统

MONITORING SYSTEMS FOR EMERGENCY DIESEL GENERATORS

应急柴油发电机监控系统

Monitoring System: 监控系统:

- Data acquisition (S129NG & PLC solution)
数据采集(S129NG和PLC解决方案)
- Event recording
事件记录
- Secure database
安全数据库
- Alarm management
报警智能管理
- Safety functions
安全功能
- Easy integration with other systems
易于与其他系统集成。

More than 200 emergency diesel generators are equipped, including DUS, with CMR solutions.

CMR解决方案应用于包括DUS在内的200多台应急柴油发电机



NUCLEAR

Our monitoring systems

监测系统

RACK 425 NG

425NG 模块

- The **425NG** is a fully modular monitoring unit, built on a 19-inch rack architecture and tailored to EDF specifications.
425NG是一个完全模块化的监控单元，基于19英寸机架架构构建，并针对EDF规格进行了定制。
- Designed for industrial and marine environments, it offers precise real-time temperature monitoring via **PT100 sensors** or **thermocouples**, without relying on any integrated software.
专为工业和海洋环境而设计，通过PT100传感器或热电偶提供精确的实时温度监测，无需依赖任何集成软件。
- With high accuracy, robust isolation, and flexible alarm management, the 425NG ensures dependable operation in the most demanding conditions.
425NG具有高精度、坚固的隔离和灵活的报警管理，可在最苛刻的条件下确保可靠运行。



NUCLEAR

Our electrical cabinets & enclosures

电气柜及箱体

ELECTRICAL CABINETS & ENCLOSURES

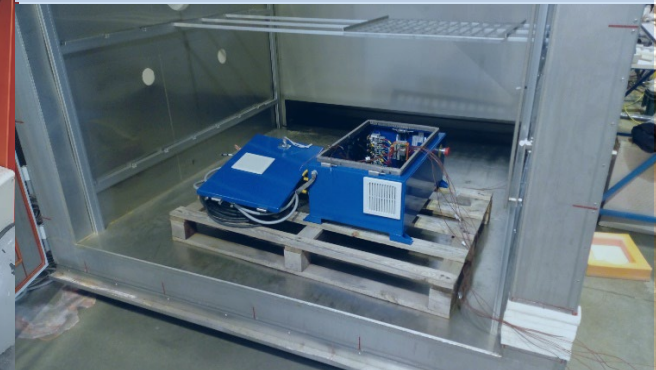
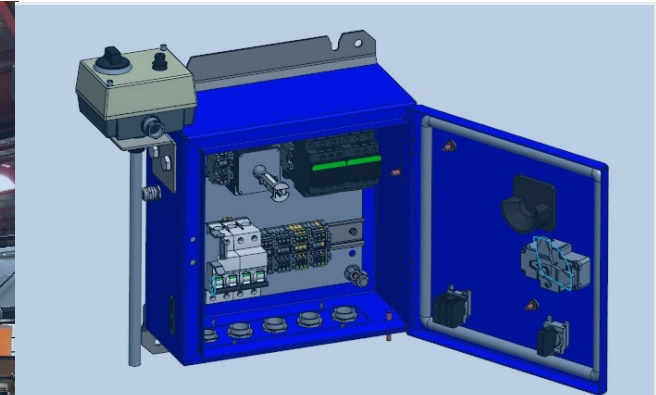
电气柜及箱体

Design 设计

- Study 研发
- Material recommendations 材料推荐
- Calculation note: mechanical & thermal 机械和热力学计算
- 3D integration 3D集成

Qualifications to nuclear environment 核能资格认证

- Internal or via partner laboratories 内部或通过合作伙伴实验室
- Vibration tests 振动测试
- Climatic ageing 气候老化实验
- Seismic tests 地震测试
- Fire resistance tests (K3/K3ad... according to RCCE)
耐火测试 (根据RCCE, 符合K3/K3ad ...)



NUCLEAR

Our electrical cabinets

电气柜

PROJECT 1 项目

Application :

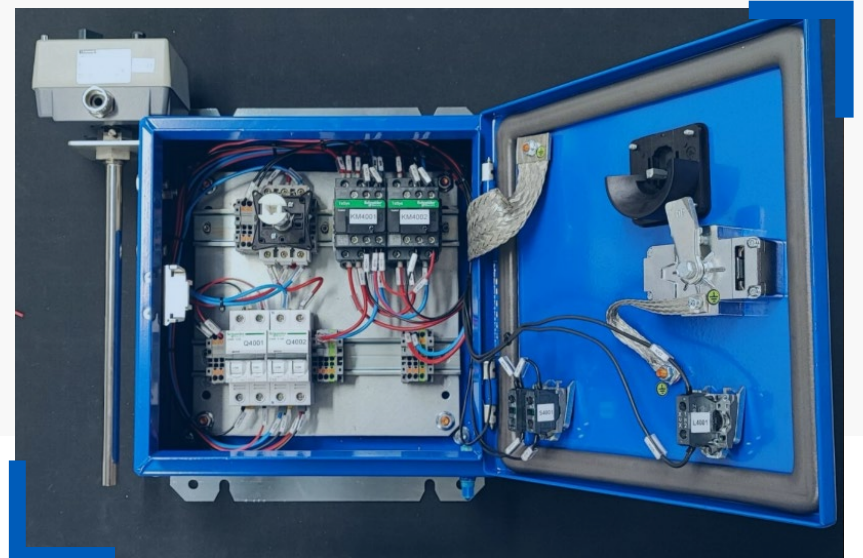
应用

- Control enclosures for convectors for CCL
用于CCL散热器的控制柜

Design/Qualification:

设计/认证

- Study of electrical sizing
电气尺寸研究
- Calculation note for seismic resistance
抗震计算
- Qualification of internal manufacturing processes
生产过程的资格认证



NUCLEAR

Our electrical cabinets

电气柜

PROJECT 2 项目2

Application :

应用

- Pneumatic enclosures for fire safety

用于消防安全的气动箱体

Design/Qualification:

设计/认证

- Vibration resistance (ageing)

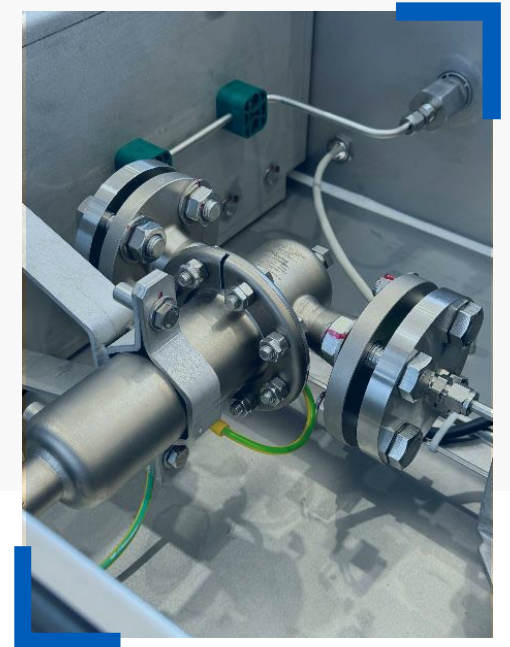
抗振动（老化）

- Seismic resistance

抗震性

- Fire resistance

阻燃耐火性



NUCLEAR

Our electrical cabinets

电气柜

PROJECT 3 项目3

Application :

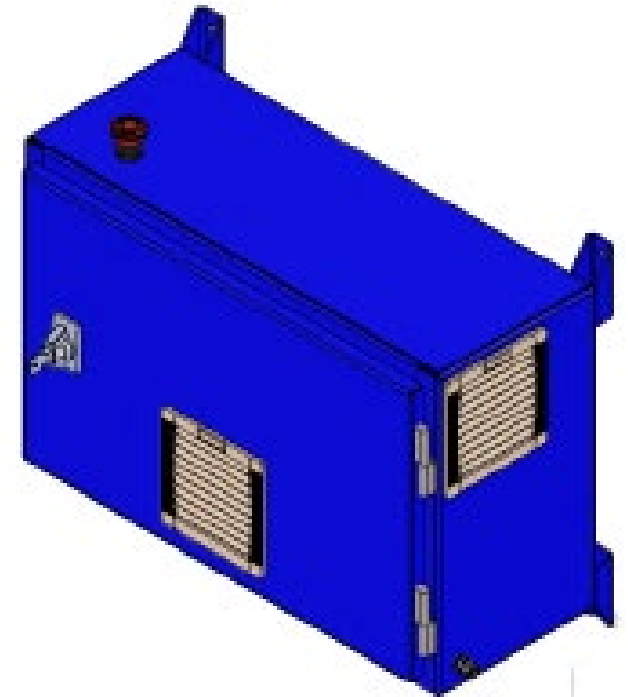
应用

- Enclosures for Diesel Generator 柴油发电机的箱体
- Power Supply 电源

Design/Qualification K3 :

设计/ K3 认证

- Reference tests 参考测试
- Functional operating limit tests 功能运行极限测试
- Aging tests (climatic, mechanical, and prolonged operations) 老化测试 (气候, 机械和长时间操作)
- Seismic resistance tests 抗震测试
- Salt mist tests 盐雾测试

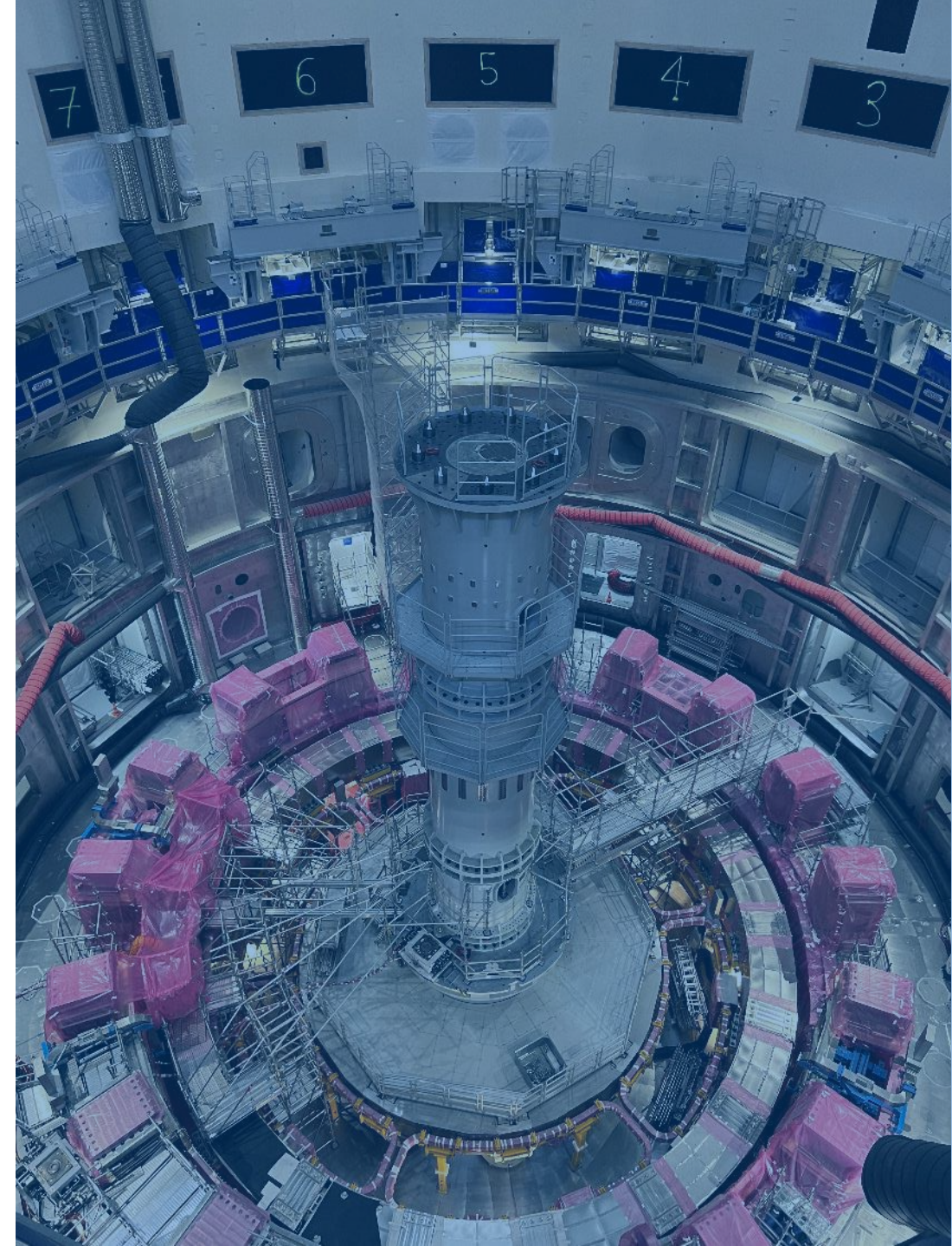


NUCLEAR

Our recent references

成功案例展示

- Instrumentation of SEC/RRI pipes for monitoring heat exchangers in all French 900 MW nuclear power plants.
SEC/RRI管道仪表，用于监测法国所有900MW核电站的热交换器
- Instrumentation of the DEL Bis water circuit cooler and air temperature measurement in all P4/PP4 reactor-type nuclear power plants.
所有P4/PP4反应堆型核电站的DEL Bis水路冷却和空气温度测量仪表。
- Instrumentation of all FA-3 turbines. Instrumentation of EVU spray pumps in the Taishan EPR (I-004).
所有FA-3涡轮机的仪表，泰山ERP (I-004)中EVU喷雾泵的仪表
- Instrumentation of RBS pumps in the Taishan EPR (I-003). 泰山ERP(I-003)中RBS泵的仪表
- Instrumentation of safety diesel generators in the FA-3 EPR, Taishan EPR, OL3 EPR, and DUS project. FA-3 EPR,泰山ERP,OL3 EPR,DUS项目安全柴油发电机仪表
- Spare temperature sensor parts for EDF UTO (via a framework contract) for all operating French nuclear power plants. EDF UTO的备用温度传感器部件（基于框架合同），用于所有运营的法国核电站
- Instrumentation of EVU spray pumps in the UK EPR (ongoing).
英国EPR中EVU喷雾泵的仪表（正在进行中）
- Instrumentation of PTR pumps in the UK EPR (ongoing).
英国EPR中PTR泵的仪表（正在进行中）
- Instrumentation of the REPB & BOP systems in the UK EPR (ongoing).
英国EPR中REPB和BOP系统的仪表（正在进行中）



NUCLEAR

Our vision

愿景

“

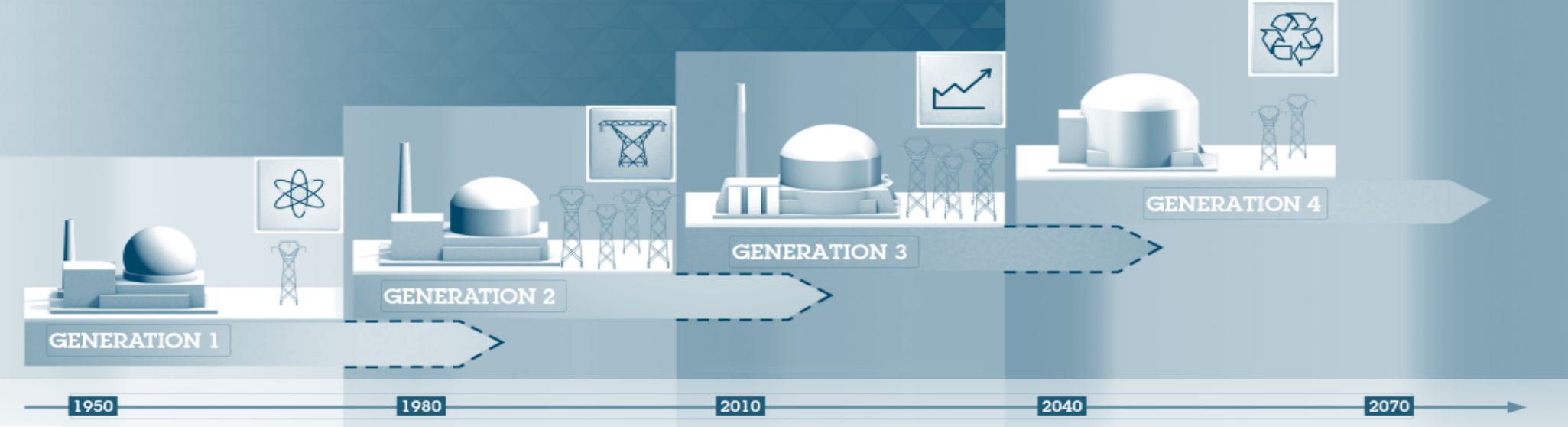
*We shape the future of nuclear energy by supporting its modernization through high-precision instrumentation and control solutions. **Our commitment:** ensuring a more efficient, reliable, and sustainable industry to meet tomorrow's energy challenges.*

我们通过提供高精度仪表和控制解决方案来支持核能的现代化，从而塑造核能的未来。**我们的承诺：**确保一个更高效、更可靠、可持续的行业，以应对未来的能源挑战。



NUCLEAR TIMELINE

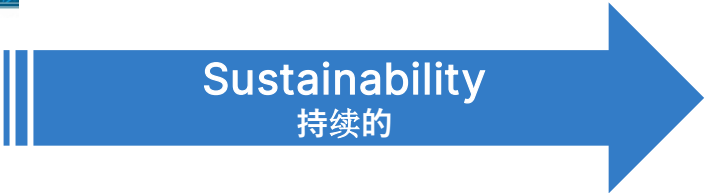
发展历程



1978



2025



20...

NUCLEAR

Our certifications

认证资质



NUCLEAR

Our clients

我们的客户

framato**me**



PUMPS

ANDRITZ



MOTORS



LEROY-SOMERTM

EDG



MISC.



CABINETS





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