



北京中水科水电科技开发有限公司 BEIJING IWHR TECHNOLOGY CO.,LTD.

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BEIJING IWHR TECHNOLOGY CO.,LTD.

联系地址：北京市海淀区玉渊潭南路3号

电 话：010-68781780

市 场 部：010-68781771

电子信箱：bitc@iwhr.com

网 址：www.bitc.net.cn

Address : No.3 south road of yu yuan tan,haidian district,beijing

Tel : 86-10-68781780

Marketing department: 86-10-68781771

Email : bitc@iwhr.com

Url : www.bitc.net.cn

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技术先进 · 质量一流 · 优质服务 · 顾客至上

ADVANCED TECHNOLOGY / FIRST-CLASS QUALITY / QUALITY SERVICE / CUSTOMER FIRST

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PEOPLE-ORIENTED / ENERGY SAVING AND ENVIRONMENTAL PROTECTION / COMPLIANCE WITH LAWS AND REGULATIONS / HARMONIOUS DEVELOPMENT



摄影 肖昉

PRESIDENT'S SPEECH

董事长致辞

北京中水科水电科技开发有限公司，（简称中水科技）集中国水利水电科学研究院相关专业六十余年水利水电科研之精华，依托中国长江三峡集团公司水电和清洁能源开发、长江大保护之伟业，以向业界提供技术先进、质量优异的产品和服务为己任，拥有国际领先水平的水力机械试验室以及众多具有自主知识产权的产品和技术，是北京市科学技术委员会认定的高新技术企业。

中水科技已为我国三峡、南水北调、西电东送等数百项重大水利水电工程提供技术、装备和服务，产品已远销国外。

近年来，中水科技以新时代中国特色社会主义思想为指导，发扬求实、创新、团结、奉献的企业精神，锐意进取，不断创新，立志打造一流的行业智能一体化解决方案，满足广大用户不断发展的智能化应用需求，为我国的水利、水电与新能源的智能化建设与科技进步做出应有的贡献。

立足国内，走向世界，努力建设成为国际一流的高新技术企业，是中水科技每一位员工的追求。

值此，我谨代表中水科技全体员工向长期支持和帮助我们的各级领导和广大用户致以衷心的感谢！

中水科技愿与您携手共创美好明天！

Beijing IWHR Technology Co., Ltd (BITC) is a high-tech enterprises, certified by Beijing Municipal Science & Technology Commission (BMSTC). Standing on top of the 60 years' achievement of China Institute of Water Resources and Hydropower Research (IWHR), backed by the great undertaking of China Three Gorges Corporation (CTG), in the development of hydropower and clean energy, protection of Yangtze River, BITC is a responsible enterprise to provide leading technologies, high quality products and services, with a panoply of products and technologies of independent intellectual property right, and the world leading laboratory of hydraulic machinery.

BITC has provided its technological solutions, facilities and services for hundreds of major hydro projects in China and abroad, including Three Gorges project, south-north water transfer project and west-east electricity transmission project, etc.

BITC will take the scientific development view as the instruction, promote the enterprise spirit of practice, innovation, unity, and devotion, go all out to make unceasing innovation, prepare to meet every new requirement of users, and do its best for the construction and advance of science and technology of hydropower and new energy of China.

With spirit of being realistic, innovative, united and dedicated, BITC will make efforts to forge ahead and innovate continuously, and determined to create first-class smart industrial solutions, to meet the increasing needs for smart applications, and made due contributions to the smart construction and technology progress in the field of water resources, hydropower and new energy resources in China.

'Based upon China, opening to the world, diligently make our BITC an international first-class high-tech enterprise', is the goal of each personnel of BITC.

I am honored to take this opportunity, on behalf of all staff of BITC, to express my heartfelt gratefulness to our customers, who have long been our guiders, supporters and friends.

BITC will walk with you hand in hand into the most beautiful tomorrow.

董事长
Chairman of Board
and President

A stylized handwritten signature in black ink, likely belonging to the Chairman of Board and President.

中水科技 · 印象

BITC · IMPRESSION

追求卓越，不断创新

中水科技

成就行业一流智能一体化解决方案商

Pursuing excellence, continuous innovation

BITC

Achieving industry-leading intelligent integrated solution provider

01
PART ONE

COMPANY PROFILE 公司介绍

北京中水科水电科技开发有限公司成立于 2004 年 12 月，系中国水利水电科学研究院与中国长江三峡集团有限公司共同出资兴办的高新技术企业，专业覆盖水利、水电、新能源等领域。主要业务包括计算机监控与集控、水轮机调速器、水情测报与水调、水力机械与机电等方面的研究、设计、开发、试验、咨询与服务，以及相关设备的制造、成套及工程总承包等。是中国水力发电工程学会信息化专业委员会、电站控制设备专业委员会、中国电机工程学会水电设备专业委员会及电力行业水电站自动化标准化技术委员会秘书处挂靠单位。

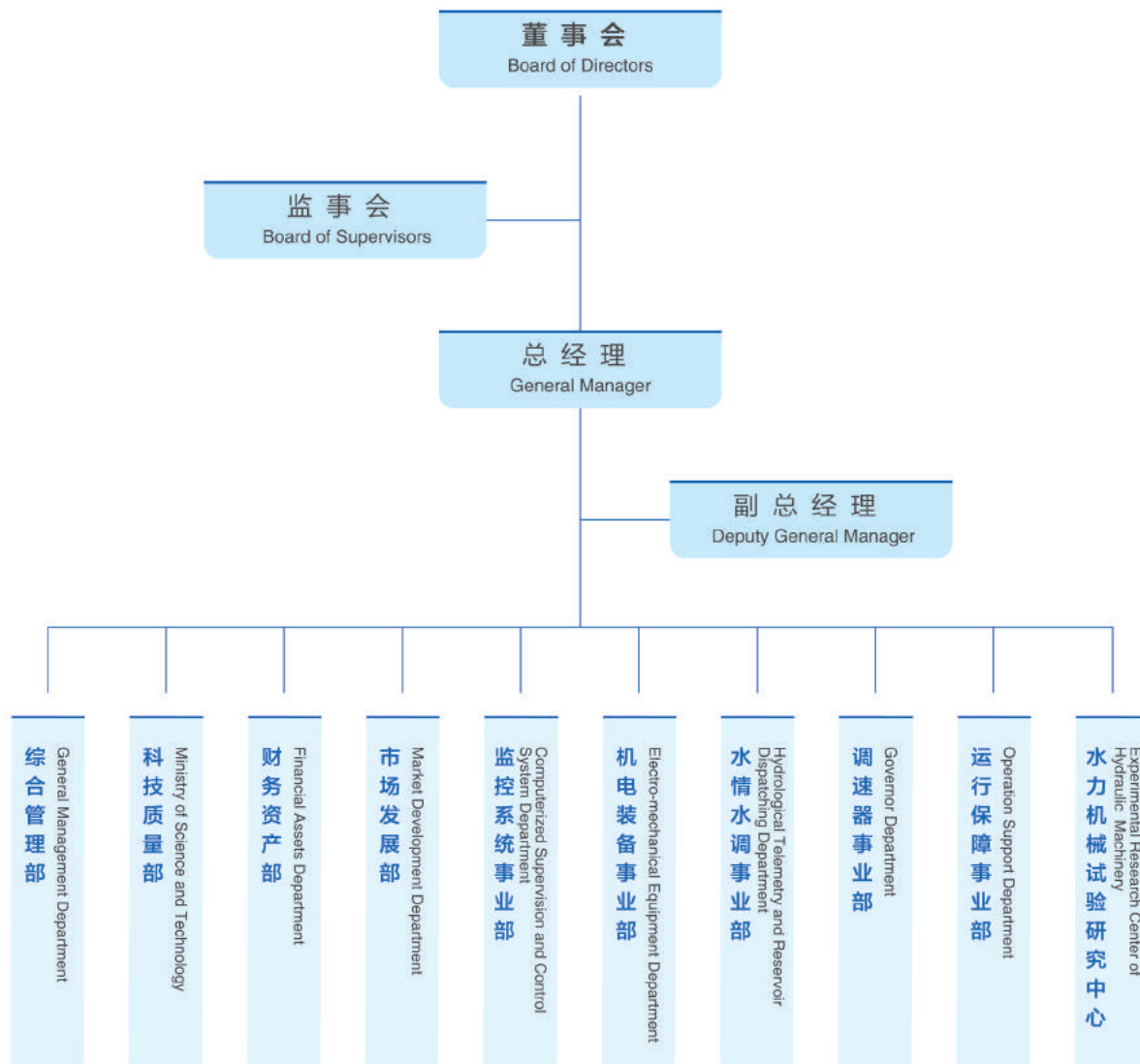
2019 年 7 月，公司有员工 295 人，其中硕士以上人员 92 人，本科 158 人，本科以上学历人数占公司总人数的 85%，教授级高级工程师 32 人，高级工程师 56 人，工程师 44 人。

Beijing IWHR Technology Co., Ltd., a joint venture between China Institute of Water Resources and Hydropower Research (IWHR) and China Three Gorges Corporation (CTG), is a high-tech enterprise, founded in 2004 and specialized in water conservancy, hydropower, new energy etc. Its primary service includes the research, design, development, test, consultation and service on computerized supervision and control system, turbine governor, water regime forecasting and reservoir dispatching, hydraulic machinery and electro-mechanical equipment, as well as manufacture and turn-key of related equipment and EPC. It is also the secretariats of PC-Info, PC-PSCE of CSHE, PC-HPE of CSEE, TC-HSA in electric power standardization.

By the end of July, 2019, BITC has a number of staff of 295, among which, 92 of master's degrees or above, 158 of bachelor degrees, which is 85% of the total staff. BITC has also 32 professors, 56 senior engineers and 44 engineers.

BITC

ORGANIZATION 组织机构



LEADERSHIP CARE 领导关怀



2018年，习近平主席视察三峡工程时，在中央控制室听取汇报
President Xi Jinping inspecting Three Gorges Project in 2018



2013年，时任汪洋副总理视察中水科技公司监控系统试验室
Then Vice Premier Wang Yang inspecting SCADA laboratory of BITC in 2013

HONOR 荣誉资质

荣誉/HONOR



奖项/AWARD



中水科技·产业

BITC · INDUSTRY

凭借先进的行业技术、质量优异的产品与服务
中水科技在发展之路上迈开坚实的步伐
打造现代化水利水电高新技术企业

With advanced industry technology and excellent quality products and services,
BITC has taken a solid step on the road of development.
Creating a modern high-tech enterprise of water conservancy and hydropower

PART TWO
02

REFERENCES

业绩分布图



INTRODUCTION OF THE BUSSINESS DEPARTMENTS

业务部门介绍

1 监控系统事业部 COMPUTERIZED SUPERVISION AND CONTROL SYSTEM DEPARTMENT

主要从事水利、水电及新能源领域的计算机监控系统、智能一体化平台以及三维仿真、数据可视化、大数据分析 & 可视化等智慧应用软件的开发、设计、集成和咨询。

30 多年来，积极自主创新，形成自主知识产权的 H9000 系列计算机监控系统。系统以性能可靠、功能完善、界面友好、组态灵活、维护简单、便于扩展等特性，满足了不同用户的需要。已应用于全球装机容量前 10 大水电站中的 5 座，以及国内外近 300 余个大中型水利枢纽、梯级调度中心、抽水蓄能电站、新能源集控中心等工程项目，遍及亚、欧、美、非等大洲近 20 个国家。也已广泛应用于闸门、泵站、调水工程、污水处理、灌区等领域。

The department is focused on the development, design, integration, engineering and consultation of automation systems, such as computerized supervision and control systems (CSCS), intelligent integrated platforms, 3D simulation & VR, big data analysis & its visualization, etc., related to water conservancy, hydropower and new energy.

A series of H9000 CSCS have been developed by the department since decades, with a full set of applied functions, to meet diversified needs of end-users. For its outstanding performance in reliability, flexibility, expandability, maintainability and user friendly, it has been widely applied in more than 300 projects, in China or abroad, such as large and medium-sized water conservancy hubs, cascade dispatching centers, pump-storage power stations, new energy control centers, including 5 of the World Top 10 hydropower stations. H9000 has also been widely adopted in the control of sluice gates, pump stations, and projects of water diversion, sewage treatment, irrigations, etc.

主要产品

- iP9000 智能一体化平台
iP9000 intelligent integration platform
- H9000 计算机监控系统
H9000 CSCS
- H9000-Woix 实时数据发布系统
H9000-Woix Web System
- iSMA2000 智能状态监测分析系统
iSMA2000 Intelligent status analysis system
- OTS2000 虚拟现实仿真系统
OTS2000 Virtual reality simulation system
- 水利自动化系统
Hydraulic Automation System
- 数据大屏综合展示系统
Data Panoramic View Display System
- BBS- 卫星同步时钟系统
BBS- satellite clock synchronizing system





南方电网清远蓄能电站计算机监控系统
CSCS of Qingyuan pump storage power station, China Southern Power Grid



国家电力投资公司江西新能源集控中心监控系统
CSCS of Jiangxi new energy control center, SPIC



安徽蚌埠闸综合自动化系统
Integrated automation system of Bengbu Sluice, Anhui



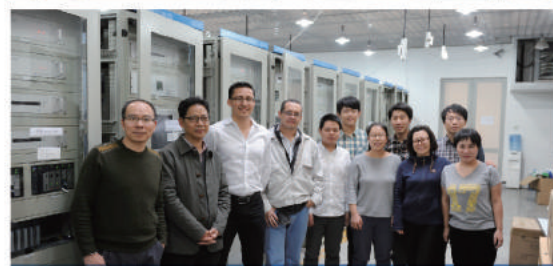
黄河上游水电公司青海共和光伏发电园区
Gonghe photovoltaic power plant of Huanghe Hydropower Development Co., LTD., Qinghai



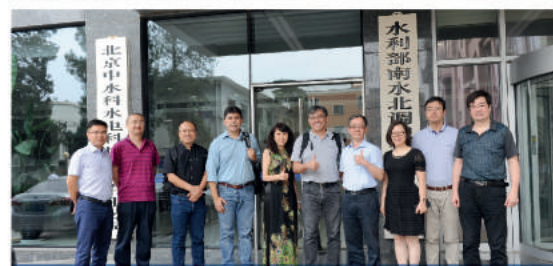
科特迪瓦总理通过H9000系统启动苏布雷首台机组发电
Prime Minister of Cote d'Ivoire starting the 1st unit of Subre hydropower station with H9000



中水科技工程师在三峡巴西伊利亚水电站
BITC engineers in Ilya hydropower station, CTG, Brazil



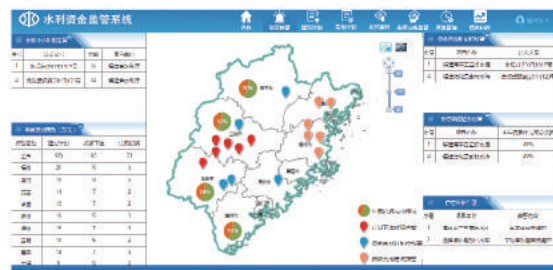
厄瓜多尔美纳斯水电站计算机监控系统出厂
After FAT of CSCS, Minas hydropower station, Ecuador



外方技术负责人对IP9000给予高度评价
ip9000, highly praised by foreign end-user



计算机监控系统装配调试车间
Workshop for assembling and debugging of CSCS



水利行业信息化管理系统
IMS for water conservancy projects

主要工程业绩
MAIN REFERENCES

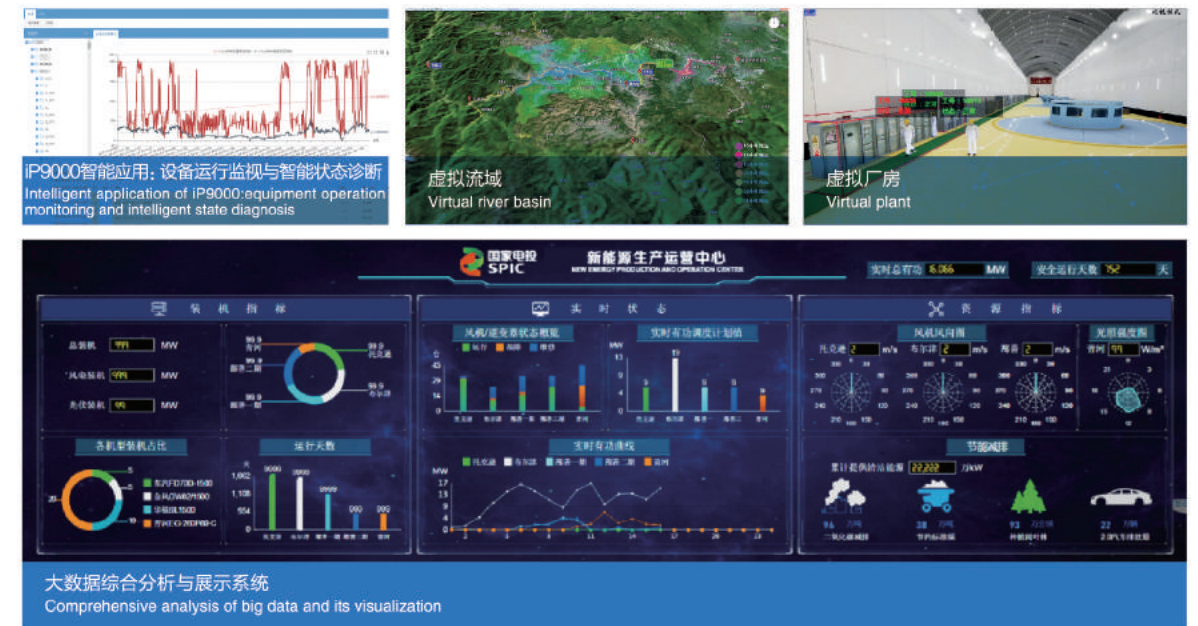
类别 CATEGORY	序号 NO.	项目名称 PROJECT NAME	电站装机 (MW) INSTALLED CAPACITY OF POWER STATION	系统型号 SYSTEM TYPE	投运时间 OPERATION
计算机监控系统 CSCS	1	溪洛渡 Xiluodu	18*770	H9000 V4	2015
	2	三峡右岸 Right Bank of Three Gorges	12*700	H9000 V4	2009
	3	向家坝 Xiangjiab	8*770	H9000 V4	2015
	4	三峡右岸地下 Underground of Three Gorges	6*700	H9000 V4	2012
	5	瀑布沟 Pubugou	6*600	H9000 V4	2011
	6	梨园 Liyuan	4*600	H9000 V4	2016
	7	葛洲坝 Gezhouba	19*125	H9000 LCU	2016
	8	龙羊峡 Longyangxia	4*320	H9000 V4	2016
	9	黄登 Huangdeng	4*475	H9000 V4	2019
	10	五强溪 Wujiangxi	5*240	H9000 V4	2012
	11	三板溪 Sanbanxi	4*250	H9000 V4	2017
梯级集控系统 Cascade Centralized Control System	1	溪洛渡-向家坝 Xiluodu-Xiangjiaba	18*700+8*800	H9000 V4	2015
	2	五凌电力 Wuling Power	8384	H9000 V4	2010
	3	湖南电力 Hunan Power, State Grid	4*100+4*25+72.5+5*75+ 2*250+4*100	H9000 V4	2018
新能源集控 Centralized Control of New Energy	1	楚雄风光互补 Wind/Hydro/PV complementary, Yunnan Chuxiong, SPIC	5*WIND+2*PHV+8*HYDRO	H9000 V5	2018
	2	五凌新疆 Wind, Xinjiang Wuling	3*风电厂	H9000 V5	2017
	3	华能布尔津 Bulzin, CHNG	148.5	H9000 V5	2018
	4	国电投江西 Jiangxi, SPIC	724	H9000 V5	2017
	5	共和-格尔木 Gonghe-Golmud, SPIC	415	H9000 V4	2017
	6	国家电投石家庄风光互补 Wind / PV complementary, Shijiazhuang, SPIC	600	H9000 V4	2018
	7	国家电投广西 Guangxi, SPIC	1495	H9000 V4	2019
抽水蓄能 Pump-storage	1	长龙山 Changlongshan	6*350	H9000 V4	2020
	2	清远 Qingyuan	4*320	H9000 V4	2016
水利信息化 Water Conservancy Informatization	1	蚌埠闸 Sluice station of Bengbu		H9000 V4	2015
	2	大兴水利枢纽 Daxing Water Control Project		H9000 V4	2019
	3	水利部水利规划计划管理信息系统 Water Resources Planning and Management Information System of Ministry of Water Resources			2015
	4	全国中小河流治理项目管理信息系统 Management System of National Small and Medium River Management Project			2012

IP9000智能一体化平台

IP9000 - AN INTELLIGENT INTEGRATION PLATFORM

采用 SOA 架构和面向对象编程技术,结合“云大物移智”等新型 IT 技术,由传统的计算机监控升级为智慧化平台,解决了安全 I、II、III、IV 区系统互联、数据共享和对外接口的问题,并支持第三方智能应用接入。平台同时具备应用软件平台和大数据平台的功能,为各专业智能应用提供运行、集成、维护、开发环境,构建水利、水电及新能源行业成套智慧化解决方案。

IP9000 is BITC' s intelligent platform based on SOA architecture and object-oriented programming, recently developed by taking full advantage of new IT technologies such as cloud computing, big data, internet of things, mobile interconnection and artificial intelligence. It provides a platform or way for interconnection of various systems, data sharing and external interface between different security zones. It provides equally a way of integration for third-party smart applications. IP9000 can not only be used as application software platform, but also as big data management platform. It provides an environment of operation, integration, maintenance and development for various intelligent applications. It can be adopted to build up global smart solutions for water conservancy, hydropower and new energy utilities.



IP9000主要业绩

MAIN REFERENCES OF IP9000

序号 NO.	工程名称 PROJECT NAME	装机容量 (MW) INSTALLED CAPACITY OF HYDROPOWER STATION	投运时间 OPERATION
1	白鹤滩水电站计算机监控系统 CSCS of Baihetan HPP	16*1000	2020
2	清江梯级调控中心 Qingjiang cascade control center	1840+1212+270	2018
3	安康电站监控改造 CSCS reform of Ankang HPP	4*200	2019
4	三峡巴西伊利亚-朱比亚电站监控及集控 CSCS and centralized control of Jupia-Ila HPP, Brazil	20*170+14*108+2*47	2020
5	三峡左岸电站监控系统改造 CSCS reform left bank HPP of Three Gorges	14*700	2019
6	乌东德-白鹤滩梯级昆明调控中心 Kunming Cascade Control Center of Wudongde-Baihetan	12*850+16*1000	2019
7	三峡-葛洲坝梯级电调改造 Cascade electric dispatching reform of Three Gorges-Gezhouba	32*700+2*50+2*170+19*125	2020
8	巴基斯坦卡洛特计算机监控系统 (Karot) CSCS of Karot HPP, Pakistan	4*180	2020
9	国电大渡河三维数字化水电厂 3D Digital hydropower plants of Dadu River, CE		2018
10	南网双调蓄能电厂三维数字化仿真 3D simulation of pump-storage power plants of PGC, CSG		2019
11	国电大渡河设备状态分析系统 State analysis system for Dadu River, CE		2019

2 机电装备事业部 ELECTRO-MECHANICAL EQUIPMENT DEPARTMENT

主要从事国际水电站机电设备 EPC 总承包，水力机械技术研发及推广工作。
 Mainly engage in EPC projects of international hydropower plants and R&D and application of hydraulic machinery.

● 国际水电站 EPC 总承包

EPC Projects of International Hydropower Plants

作为国际水电站 EPC 总包方，有从事水电站设计、监造及质量控制、指导安装调试的专业技术团队，有经验丰富的项目管理团队，有能力承担各类水电站的机电设备交钥匙工程。

BITC has engaged in the design, supervision and quality control, guiding installation and commissioning of electro-mechanical equipment, as well as turn-key projects of international Hydropower Plants.

● 水力机械技术研发及推广

Hydraulic Turbines and Pumps

水轮机、水泵、水泵水轮机水力模型研发

R&D of hydraulic models of hydro turbines, pump turbines and water pumps

水电站、泵站的机电设备参数论证、技术咨询、关键设备研制

Parameters demonstration, consultation and R&D of essential electro-mechanical equipment for hydropower plants and pump stations

水电站水轮机增效扩容改造

Renovation, uprating and upgrading of turbine

泵站水泵增效节能改造

Renovation, uprating and upgrading of water pump



水轮机模型机组和模型转轮
Model turbine unit and runner

应用于国外水电站的部分水轮机转轮
Turbines for international hydropower plants



越南Bac Binh 水电站厂房
Bac Binh HPP in Vietnam



土耳其Bayramhacili水电站发电机层
Bayramhacili HPP in Turkey



土耳其Bayramhacili水电站
Bayramhacili HPP in Turkey



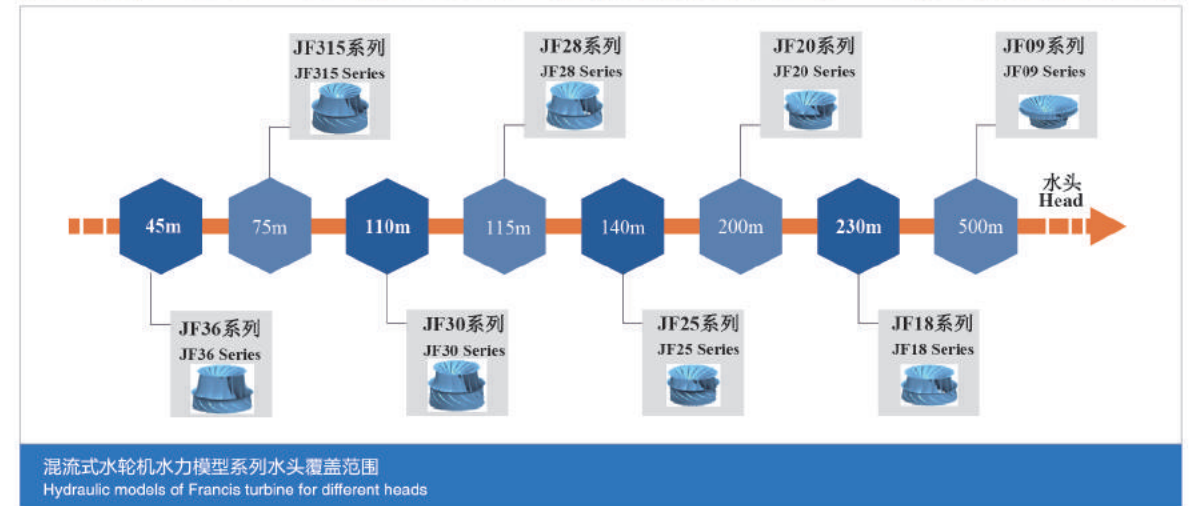
土耳其Gullubag水电站发电机层
Gullubag HPP in Turkey



匡尚富院长访问土耳其Soyak集团
Kwang Shangju, President of IWHR, Visiting SOYAK Group Company



土耳其Kozbuku水电站发电机层
Kozbuku HPP in Turkey



国际水电站EPC主要业绩

KEY REFERENCE FOR EPC PROJECTS OF INTERNATIONAL HYDROPOWER PLANTS

序号 NO.	国家 COUNTRY	工程名称 NAME OF PROJECT	电站装机 (MW) CAPACITY	投运时间 OPERATION
1	巴基斯坦 Pakistan	JAGGRAN II	4x12.35	2022
2	土耳其 Turkey	KARAKUS	2x3.342 +1x1.678	2020
3	土耳其 Turkey	KOZBUKU	4x20.25	2016
4	土耳其 Turkey	GULLUBAG	3x32.3	2012
5	越南 Vietnam	DAKR'TIH (上游)	2x41	2011
6	越南 Vietnam	DAKR'TIH (下游)	2x31	2011
7	土耳其 Turkey	BAYRAMHACILI	2x23.47	2011
8	越南 Vietnam	BAC BINH	2x16.5	2009

水轮机转轮应用主要业绩

KEY REFERENCE OF HYDRAULIC TURBINE

国家 COUNTRY	序号 NO.	工程名称 NAME OF PROJECT	电站装机 (MW), 机组型号 CAPACITY, TURBINE MODEL	投运时间 OPERATION
中国 China	1	夏特 Xiate	4x62, JF0904-LJ-302	2020
	2	茶路 Chalu	2x10, JF1064A-LJ-130	2017
	3	库尔乌泽克 Kuerwuzeke	2x28, JF2061-LJ-185 1x16, JF1803-LJ-155	2016
	4	杨家湾 Yangjiawan	3x20, JF1808-LJ-180.93	2016
	5	金沟河 Jingouhe	2x10, JF1058-LJ-180	2016
	6	桃林口 Taolinkou	2x11, JF3166C-LJ-180	2016
	7	枫树岭 Fengshulin	2x18, JF2253D-LJ-130	2016
	8	湾塘 Wantang	2x11, JF3636C-LJ-232	2015
	9	华安 Hua'an	1x16, JF3038E-LJ-228	2015
	10	西沟 Xigou	2x21, JF2061D-LJ-140	2014
	11	齐热哈塔尔 Qirehataer	3x70, JF0904-LJ-266	2013
	12	小山口二级 Xiaoshankou II	3x17.8, JF3635D-LJ-280	2013
	13	九龙峡 Jiulongxia	3x27, JF2055A-LJ-180	2012

水轮机转轮应用主要业绩

KEY REFERENCE OF HYDRAULIC TURBINE

国家 COUNTRY	序号 NO.	工程名称 NAME OF PROJECT	电站装机 (MW), 机组型号 CAPACITY, TURBINE MODEL	投运时间 OPERATION
中国 China	14	台兰河 Tallanhe	4x19.2, JF2062-LJ-200	2012
	15	肯斯瓦特 Kensiwate	3x30, JF2062-LJ-252 1x10, JF1809-LJ-160	2012
	16	迪麻洛河 Dimaluohu	2x26, JF1260-LJ-145	2012
	17	南丰 Nanfeng	2x10, JF3154-LJ-235	2011
	18	尼勒克 Nileke	4x55, JF1803-LJ-215	2011
	19	下坂地 Xiabandi	3x50, JF1808-LJ-210	2009
	20	红山嘴一级 Hongshanzui I	2x16, JF2058-LJ-180	2009
	21	铁城 Tiecheng	3x16, JF3017-LJ-183	2008
	22	土仓 Tuchang	2x17.5, JF3014-LJ-290	2007
	23	朗外河 Langwaihe	2x22.5, JF3017-LJ-272	2007
	24	将军坡 Jiangjupo	1x10, JF3620A-LJ-178	2006
	25	乌鲁瓦提 Wuluwati	4x15, JF2511-LJ-162	2005
	26	铁门关 Tiemenguan	5x10, JF2513-LJ-140	2001
老挝 Laos	27	南欧江七级 Nam Ou River VII	2x105, JF2052C-LJ-370	2020
刚果(金) Congo King	28	BUSANGA	4x60, JF2061-LJ-263	2020
	29	ZONGO II	3x50, JF2062-LJ-285	2017
意大利 Italy	30	MONTJOVET	1x25, JF2812A-LJ-270	2014
老挝 Laos	31	南坎二级 Nam Khan II	2x65, JF2052C-LJ-280	2001
	32	南欧江六级 Nam Ou River VI	3x60, JF3011-LJ-375	2014
马拉维 Malawi	33	KAPICHIRA	2x33, JF3017-LJ-266	2013
越南 Vietnam	34	DAKR'TIH	2x31, JF3011-LJ-190	2011
意大利 Italy	35	QUART	2x19, JF2191-WJ-210	2011
土耳其 Turkey	36	GÜLLÜBAĞ	3x32.3, JF2061-LJ-245	2010
越南 Vietnam	37	BAC BINH	2x16.5, JF3026-LJ-180	2009
乌兹别克斯坦 Uzbekistan	38	AHANGELANG	2x10, JF3001B-LJ-160	2008
土耳其 Turkey	39	OBRUK	4x50, JF3017-LJ-310	2007

3 运行保障事业部 OPERATION SUPPORT DEPARTMENT

主要从事水利水电工程水机组运行及保障相关技术研发与服务
Major services and researches

- 现场测试及相关技术研究
Field test and related technique research
- 水电工程启动调试试验、稳定性试验、电气试验、性能验收试验
Commissioning test, stability test, electrical test, performance acceptance test for hydropower project
- 状态监测系统与智能诊断
Condition monitoring system and fault diagnosis technology
- 机械电气和金属结构安全检测、鉴定及评估
Safety inspection, appraisal and evaluation of mechanical, electrical and metal structure
- 运行稳定性关键技术的研究与咨询
Research and consultation of stability key technology
- 强度、疲劳与流动计算分析, 水力机械 CFD 优化设计
Calculation and analysis of strength, fatigue and flow CFD optimization design for hydraulic machinery
- 空蚀、磨损的测控与防护修复, 抗空蚀磨损材料的研发与应用
Research on hydraulic machinery cavitation and abrasion, development of anti-erosion materials
- 三维参数化模型设计和运动仿真系统开发
3D parametric CAD and virtual prototype

现场试验

FIELD TEST



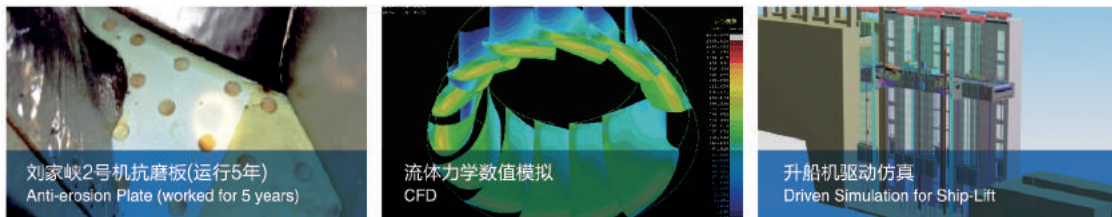
产品研发

PROJECT DEVELOPMENT



其他业务

OTHER SERVICES



主要业绩

KEY REFERENCE OF FIELD TEST

序号 NO.	项目名称 PROJECT NAME	项目时间 YEAR
1	塔吉克斯坦格拉夫纳亚水电站技改工程水轮发电机组性能试验 Unit performance test for Tajikistan Golovnaya 240MW HPP Rehabilitation Project	2019
2	老挝XEPIAN电站现场试验技术服务 field test service for Laos XePian Hydropower Project	2019
3	巴基斯坦科哈拉、卡洛特、玛尔电站水轮机泥沙磨损评估 Sediment erosion evaluation service for Kohala, Karo, Mahl Hydropower Stations in Pakistan	2019
4	厄瓜多尔德尔西水电站工程现场试验技术服务 Field test service for Delsi-Tanisagua Project in Ecuador	2018
5	老挝南俄5水电站机组水轮机效率及机组耗水率试验 Turbine efficiency and water consumption rate test for Nam Ngum 5 hydropower plant in Laos	2018
6	南俄5水电站机组进相试验 Unit reactive capacity test for Nam Ngum 5 hydropower plant in Laos	2018
7	老挝南欧江一期工程二级水电站水轮发电机组现场特性试验 Unit performance test for Nam Ou 2 hydropower station in Laos	2018
8	津巴布韦卡里巴南岸水电站工程水轮发电机组性能试验 Unit performance test for Kariba South hydropower project in Zimbabwe	2018
9	格鲁吉亚Kheivachauri I Weir HEPP 水电站项目现场试验技术服务 Field test service for KCH1 hydropower station in Georgia	2018
10	紧水滩电站机组效率和稳定性试验 Units efficiency and stability test in Jinshuitan hydropower station	2018
11	向家坝电站推力轴承运行油膜厚度监测装置购置及数据分析功能优化合同 Monitoring equipment development for thrust bearing bush oil film thickness of Xiangjiaba hydropower station	2017
12	苏布雷主电站和微型电站水轮发电机组现场特殊试验 Field test service for Main and Micro units of Soubre hydropower station in Coast Ivory	2017
13	石站3号机组改造后稳定性及效率试验 Stability and efficiency test for Shitang hydropower station	2017
14	大型抽水蓄能电站机组和厂房振动数据测量和统计 Measurement and statistics analysis for large pump-storage hydropower station and power house	2017
15	基于健康标准的机组主设备状态评估及软件系统研制 Development of unit main equipment condition evaluation system based on healthy model	2016
16	智利EL PASO水电站主设备性能试验 Unit performance test for El Paso hydropower station in Chile	2016
17	几内亚凯乐塔水利枢纽项目水轮机发电机组真机测试 Field test for hydro-electric unit of Kaleta hydropower station in Guinea	2016
18	泉水万安溪电站水轮发电机组动平衡、稳定性试验 Dynamic and stability test for Wanaxi hydropower station in Quanshui	2016
19	水力机械磨蚀测试系统研制 Development of erosion test system for hydraulic machinery	2016
20	水机组智能诊断技术研发与应用规划及实施方案研究 Research of implementation and application planning for intelligent diagnosis technology of hydropower unit	2015
21	呼和浩特抽水蓄能电站机组甩负荷及干扰试验 Power rejection and disturbance test for pump-storage station in Hohhot	2015
22	白鹤滩、乌东德电站百万机组水轮机泥沙磨损评估研究 Sediment erosion research for megawatts unit of Baihetan and Wudongde hydropower station	2015
23	三峡电站在线监测系统集成应用及功能优化研究 Research of integration application and function optimization for online monitoring system of TGP	2014
24	向家坝升船机模拟仿真系统开发与仿真动画视频制作 Simulation system development and animation video processing for ship-lift of Xiangjiaba hydropower project	2013
25	太平湾电厂水轮机空化监测技术研究及装置研发 Research and development of cavitation monitoring technology and system for Taipingwan hydropower station	2012
26	三峡电厂上游水位上升145~175M机组运行稳定性及效率试验研究 Units stability and efficiency test during upstream 135~156m water level period on left bank stations of Three Gorges project	2008

4 水情水调事业部 HYDROLOGICAL TELEMETRY AND RESERVOIR DISPATCHING DEPARTMENT

主要从事水电厂及流域水情测报与水调自动化系统研发与技术服务。拥有下列核心技术和产品：

Mainly engaged in R&D and services of hydrological telemetry and reservoir dispatching of hydropower plants and basins. Main business:

● HR9000 水情自动测报系统

Automatic hydrological telemetry system (HR9000)

包括遥测站集成安装、数据采集、信息处理、图形显示、超限报警等功能，适用于流域、水利枢纽、水电站、水库等。

Including such functions: telemetry station installed integrally, data acquisition, information processing, graph displaying, limit exceed alarming, etc, and can be applied to watershed, water conservancy, hydropower plant, reservoir and so on.

● SD3000 /TSD3000 梯级水调自动化系统

Hydropower dispatching automation system of cascade reservoirs (SD3000/STD3000)

具有安全的网络结构、图库模一体化界面、智能化系统平台和标准接口，耦合利用数值天气预报成果，集合分布式、集中式多种洪水预报模型，能够提供多种水库调度智能决策方案。

It has a secure network structure, integrated interface of map and database, intelligent system platform and standard ports. It can provide a variety of intelligent decision-making schemes for reservoir dispatching by integrating the results of numerical weather prediction and collecting distributed and centralized flood forecasting models.

● 水库（群）防洪发电调度

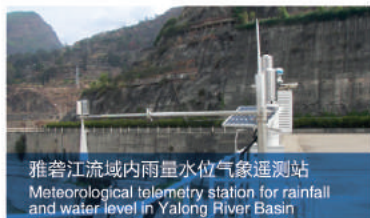
Optimal dispatching of flood control and power generation of a reservoir or reservoir groups

包括流域洪水预报、预报预泄与拦蓄调度、补偿调度、水库群联合防洪调度、会商决策支持等功能。

Main functions: flood forecasting of a basin, pre-discharging and storage dispatching, compensation dispatching, combined flood control dispatching of reservoirs, consultation decision-making support and others.



数据采集技术研发试验设备
R&D equipment of data acquisition



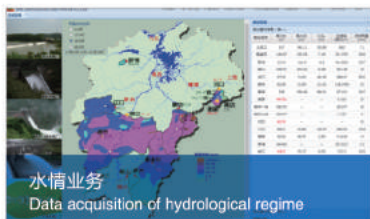
雅砻江流域内雨量水位气象遥测站
Meteorological telemetry station for rainfall and water level in Yalong River Basin



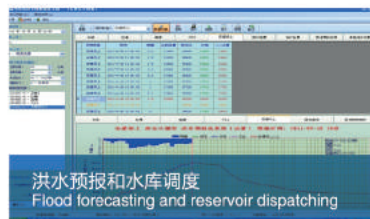
三峡流域北斗卫星雨量遥测站
Rainfall telemetry station Based on Beidou satellite in the Three Gorges River Basin



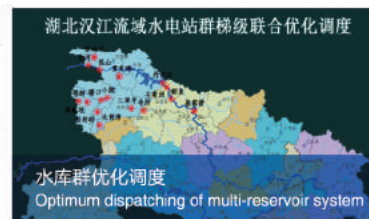
雷达式雨量水位遥测站
Radar-type rainfall and water level telemetry station



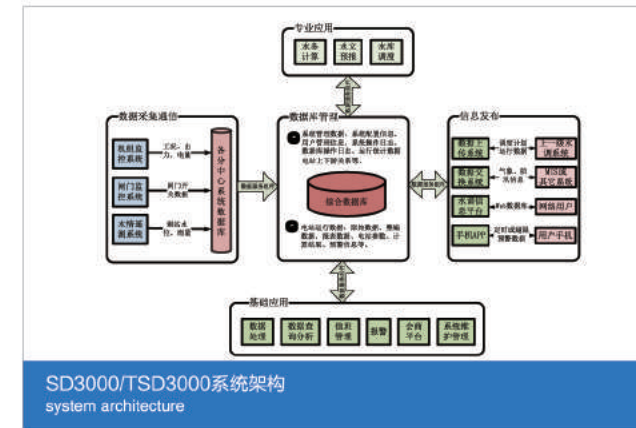
水情业务
Data acquisition of hydrological regime



洪水预报和水库调度
Flood forecasting and reservoir dispatching



水库群优化调度
Optimum dispatching of multi-reservoir system



主要业绩

KEY REFERENCE OF FIELD TEST

序号 NO.	工程名称 PROJECT NAME	完成时间 OPERATION
1	万安水电厂水情自动测报系统 The automatic hydrological telemetry system of Wan'an hydropower plant, Jiangxi	2001
2	三峡公司水情测报系统（屏山-寸滩） The automatic hydrological telemetry system of Pingshan-Cuntan, CTG	2009
3	雅砻江流域水情测报系统 The automatic hydrological telemetry system of Yalong River basin, Sichuan	2010
4	东北电网水库流域大洪水超长期预测研究 Ultra-long term forecasting for big flood and extremely high annual runoff of reservoir basins, Northeast China Grid	2012
5	广西电网水电在线预报调度智能决策研究 Research on online forecasting and dispatching of hydropower and intelligent decision-making, Guangxi Power Grid	2012
6	汉江流域水电站群梯级联合优化调度 Combined optimal dispatching of cascade hydropower plants of Hanjiang basin	2011
7	老挝南立1-2水电站水情测报系统 The automatic hydrological telemetry system of Nam Lik 1-2 hydropower plants	2011
8	浙江省中小河流预警预报方案构建项目 Construction of early warning and forecasting schemes for small and medium rivers, Zhejiang	2014
9	天津市水资源监控系统 Water resources monitoring system of Tianjin	2014
10	珠委水文局水情业务系统 Hydrological regime business system of Hydrological Bureau of Pearl River Water Resources Commission, MWR	2016
11	清江水电公司水电调一体化平台 Integrated platform for flood and hydropower dispatching, Hubei Qingjiang Hydropower Development Co., Ltd.	2017
12	国家电投江西电力有限公司水情信息平台 Hydrological regime information platform, electric power Co., Ltd, Jiangxi	2017
13	引济济辽工程文得根水利枢纽水情自动测报系统 Automatic hydrological telemetry system of Wendegen water conservancy project of water diversion from Chaoer River to west Liao River	2023

5 调速器事业部 GOVERNOR DEPARTMENT

主要从事水轮机调节系统及装置、辅助设备控制装置、水轮机组综合测试系统、相关基础自动化元件的研究、开发与生产。

Research, development and manufacturing of turbine governor system and equipment, auxiliary control equipment, integrated testing system and related basic automatic components.

主要产品

MAIN PRODUCTS

- 水轮机调节系统及装置
DVG2000 turbine governor system and equipment
- 机组辅助设备控制装置、进水蝶阀 / 球阀控制系统、润滑系统、制动系统与装置
Unit auxiliary control equipment, inlet butterfly valve / ball valve control system, lubricating system, brake system and equipment
- 机组自动化元件及装置：事故配压阀、分段关闭装置、重锤关机装置、油泵组合阀、主令控制器、转速信号装置等
Unit automatic components and equipment: emergency distributing valve, step closing device, weight-loaded close-down valve, oil pump combined valve, servomotor main switches, speed signal device, etc.

在国际上首次提出并实现了由高速开关阀与插装阀为核心组件的水轮机调速系统，取消了滑阀式主配压阀及传统电液转换等环节。

DVG2000 turbine governor was invented with high speed valve and logic cartridge control valve as its core components, instead of slide valve type main distributing valve and traditional electro-hydraulic conversion.



公伯峡水电站300MW混流机组调速器
300MW Francis turbine governor for Gongboxia hydropower plant

凤滩水电站200MW组合式事故配压阀和分段关闭阀
200MW combined emergency distributing valve and step closing valve for Fengtan hydropower plant



葛洲坝水电站150MW轴流转浆机组调速器
150MW Kaplan turbine governor for Gezhouba hydropower plant



广西红花水电站38MW贯流机组调速器
38MW tubular turbine governor for Honghua hydropower plant, Guangxi

赞比亚Lunzua水电站冲击机组调速器
Pelton turbine governor for Lunzua hydropower plant, Zambia

主要业绩

KEY REFERENCE

序号 NO.	电站名称 NAME OF HPP	台数 QTY	机组容量 UNIT CAPACITY (MW)	型号 MODEL	机组型式 UNIT TYPE	投运时间 OPERATION
1	青海公伯峡 Gongboxia	3	300	CVT-150-6.3	混流 Francis	2019
2	葛洲坝 Gezhouba	1	150	CVZT-150-4.0	轴流转浆 Kaplan	2019
3	湖南柘溪 Zhexi	2	250	CVT-150-6.3	混流 Francis	2016
4	贵州白市 Baishi	3	140	CVT-150-6.3	混流 Francis	2017
5	广西百色右江 Youjiang	1	139	CVT-100-6.3	混流 Francis	2016
6	浙江乌溪江湖南镇 Hunanzhen	1	125	CVT-150-6.3	混流 Francis	2016
7	福建水口 Shuikou	7	200	CVZT-150-4.0	轴流转浆 Kaplan	2008-2015
8	叙利亚迪士林 Tishrin, Syria	6	105	CVZT-150-4.0	轴流转浆 Kaplan	2011
9	陕西旬阳 Xunyang	4	80	CVZT-150-6.3	轴流转浆 Kaplan	2020
10	陕西喜河 Xihe	3	60	CVZT-150-6.3	轴流转浆 Kaplan	2016
11	陕西蜀河 Shuhe	6	45	CVZT-150-6.3	灯泡贯流 Bulb tubular	2018
12	广西红花 Honghua	6	38	CVZT-150-6.3	灯泡贯流 Bulb tubular	2011
13	湖南株洲航电 Zhuzhou navigation and power hub	5	28.8	CVZT-150-6.3	灯泡贯流 Bulb tubular	2014
14	巴基斯坦 Jaggran II, Pakistan	4	48	CVCJT-4/4-6.3	冲击 Impulse	2019
15	四川江咀 Jiangzui	2	8	CVCJT-2/2-6.3	冲击 Impulse	2018
16	赞比亚 Lunzua, Zambia	2	7.7	CVCJT-2/2-6.3	冲击 Impulse	2013
17	湖南凤滩 Fengtan	2	25	YCVT-150000-16	混流 Francis	2013
18	陕西三河口 Sanhekou	2	20	YCVT-130000-16	变频 Variable speed	2019
19	四川小龙门 Xiaolongmen	4	13	CVZT-100-6.3	竖井贯流 Pit tubular	2017

6 水力机械试验研究中心 EXPERIMENTAL RESEARCH CENTER OF HYDRAULIC MACHINERY

主要从事水力机械模型试验及泥沙磨损、空化空蚀等试验研究，是中国国家认证认可监督委员会“水电站水力设备质量检验测试中心”的重要组成部分。拥有功能齐全、国际领先水平的水力机械模型通用试验台 3 座，冲击式水轮机模型试验台 1 座，水力机械磨蚀测试系统 1 座。可承担水轮机、水泵和水泵水轮机等研究及模型验收、同台对比等试验任务。

完成三峡右岸、向家坝、乌东德、白鹤滩、南水北调、土耳其的 BH 电站、巴基斯坦的 PATRIND 电站等水利水电工程的试验研究、模型验收试验、同台对比试验和国际合作项目 50 多项。

The Experimental Research Center of Hydraulic Machinery is mainly engaged in hydraulic machinery model test and sediment wear, cavitation erosion and other experimental studies. Fully-featured and top-level test rigs for hydraulic machinery are equipped, including three universal model test rigs for hydraulic machinery, one model test rig for Pelton turbine and one Abrasion and Erosion Testing System for Hydraulic Machinery. It can undertake the research, model acceptance test and comparative test of turbines, pumps and pump-turbines on the test rigs.

More than 50 projects about model test and related research have been completed, including the right bank of Three Gorges, Xiangjiaba, Wudongde, Baihetan, the South-to-North Water Diversion Project, BAYRAMHACILI in Turkey and Parind in Pakistan, etc.

水力机械模型通用试验台

UNIVERSAL MODEL TEST RIG FOR HYDRAULIC MACHINERY



水力机械模型通用试验台主要参数

MAIN PARAMETERS OF UNIVERSAL MODEL TEST RIGS

试验台 Test Rig	TP1	TP2	TP3
最高试验水头 Test Head Hmax.(m)	150	20	60
最大流量 Test Discharge Qmax.(m ³ /s)	2.0	1.5	1.0
动力主泵功率 Main Pump Motor (kW)	724×2	593	593
测功电机功率 Dynamo-meter (kW)	540	300	300
试验转速 Test Speed (r/min)	0~2600	0~3000	0~3000
转轮直径 Model Runner D1(mm)	250~500	250~500	250~500
效率测量不确定度 Total Error of Efficiency (%)	<±0.2	<±0.2	<±0.2(IN CLEAN WATER) <±0.4(IN SAND-WATER)

泥沙磨损及空化空蚀试验装置参数

TEST FACILITIES OF SILT ABRASION AND CAVITATION EROSION

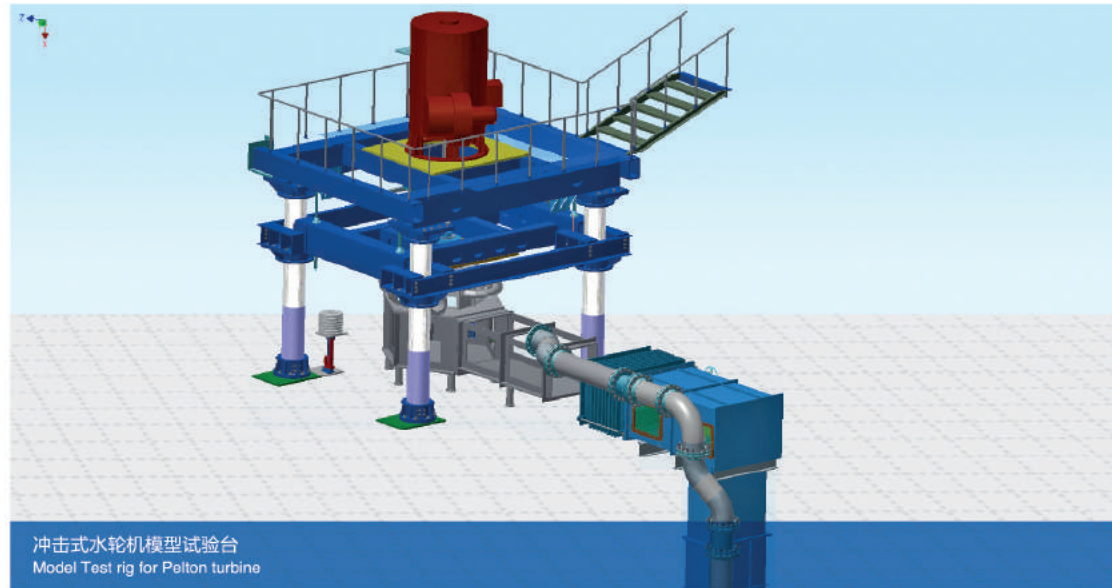
装置名称 Name of Facilities	配套动力 Power of Motor (kW)	工作段流速 Velocity of Test (m/s)	用途 Function
水洞 Water tunnel abrasion device	110	~45	空化空蚀与磨损研究 Study on the cavitation erosion and silt abrasion
旋转圆盘 Rotating-disc	37	~85	
旋转喷射仪 Rotating-disc jet abrasion device	37	~120	磨损与选材试验 Silt abrasion test of materials



冲击式试验台主要参数

MAIN PARAMETERS OF MODEL TEST RIG FOR PELTON TURBINE

最高试验水头 Test Head Hmax.(m)	最大流量 Test Discharge Qmax.(m ³ /s)	动力主泵功率 Main Pump Motor (kW)	测功电机功率 Dynamo-meter (kW)	转轮直径 Model Runner D1(mm)	效率测量不确定度 Total Error of Efficiency (%)
240	350	500×2	540	250-500	<±0.25



主要业绩

KEY REFERENCE

序号 NO.	项目名称 Name of Project	装机容量 (MW) Capacity	项目时间 Date
1	三峡右岸电站水轮机参数选择及稳定性研究 Stability research and parameter selection on model turbine of Three Gorges Right Bank Plant	12×700	2001
2	三峡右岸水轮发电机组国际招标水轮机模型同台对比复核试验 The international check test of model turbine of Three Gorges Right Bank Plant	12×700	2003
3	土耳其OBROK 电站水轮机模型验收试验 The international model acceptance test of the OBRUK Hydropower Project	4×59	2006
4	糯扎渡水电站水轮机模型开发试验 Developmental model test of Nuozhadu Power Plant		2006
5	四川省雅砻江锦屏一/二级水电站水轮机招标第三方试验台水轮机模型复核试验 The check test of model turbine of Jinping I & II Power Plant	6×600 8×600	2006 2007
6	金沙江溪洛渡水电站水轮机招标第三方试验台水轮机模型复核试验 The international check test of model turbine of XILUODU Power Plant	18×770	2008
7	金沙江向家坝水电站水轮机招标第三方试验台水轮机模型复核试验 The international check test of model turbine of XIANGJIABA Power Plant	8×800	2008
8	土耳其BH电站水轮机模型验收试验 The international acceptance test of model turbine of KIZILIRMAK-BAYRAMHACILI Power Plant	2×23.47	2009
9	河口电站模型灯泡贯流式水轮机模型验收试验 The acceptance test of model turbine of HEKOU		2009

主要业绩

KEY REFERENCE

序号 NO.	项目名称 Name of Project	装机容量 (MW) Capacity	项目时间 Date
10	越南KHE-BO 电站水轮机模型验收试验 The international acceptance test of model turbine of KHE-BO Power Plant	2×51.28	2009
11	土耳其GB 电站水轮机模型验收试验 The international acceptance test of model turbine of GB HYDROPOWER PROJECT	3×32.3	2010
12	江苏溧阳抽水蓄能电站水泵水轮机招标第三方试验台模型同台对比复核试验 The check test of model pump-turbine of LIYANG Power Plant	6×250	2010
13	葛洲坝电站129MW 水轮机增容改造水轮机优化模型第三方试验台水轮机同台对比复核试验 The check test of model turbine of GEZHOUBA Power Plant	19×129	2011
14	浙江仙居抽水蓄能电站水泵水轮机招标第三方试验台模型同台对比复核试验 The check test of model pump-turbine of XIANJU Power Plant	4×375	2012
15	超大型混流式水轮机稳定性研究 Stability research on extra-large France turbine		2013
16	金沙江乌东德水电站机组招标水轮机模型第三方试验台同台对比复核试验 The international check test of model turbine of WUDONGDE Power Plant	12×850	2014
17	金沙江白鹤滩水电站机组招标水轮机模型第三方试验台同台对比复核试验 The international check test of model turbine of BAIHETAN Power Plant	16×1000	2014
18	安徽绩溪抽水蓄能电站水泵水轮机招标第三方试验台模型同台对比复核试验 The check test of model pump-turbine of JIXI	6×300	2014
19	吉林敦化抽水蓄能电站水泵水轮机招标第三方试验台模型同台对比复核试验 The check test of model pump-turbine of DUNHUA	4×357	2014
20	金沙江白鹤滩水电站水轮机模型 (东电) 验收试验 The acceptance test of model turbine of BAIHETAN	16×1000	2015
21	大藤峡电站左岸厂房水轮机模型第三方试验台同台对比复核试验 The check test of model turbine of DATENGXIA left bank	8×200	2016
22	巴基斯坦卡洛特电站水轮机模型第三方试验台同台对比复核试验 The check test of model turbine of KAROT	4×180	2016
23	敦化D789/A1278 转轮模型验收试验 The acceptance test of model pump-turbine of DUNHUA D789/A1278	4×357	2016
24	浙江长龙山抽水蓄能电站水泵水轮机招标第三方试验台模型同台对比复核试验 The check test of model pump-turbine of CHANGLONGSHAN	6×357	2016
25	山东沂蒙抽水蓄能电站水泵水轮机验收试验 The acceptance test of model pump-turbine of YIMENG	4×300	2017
26	李家峡水电站水轮机招标第三方试验台水轮机模型性能同台对比复核试验 The check test of model turbine of LIJIAXIA	5×400	2017
27	河北丰宁二期抽水蓄能电站水泵水轮机验收试验 (东电) The acceptance test of model pump-turbine of FENGNING II (DEC)	6×300	2018
28	引汉济渭三河口水利枢纽工程水泵水轮机模型验收试验 The acceptance test of model pump-turbine of SANHEKOU	2×10	2018
29	五强溪水电站扩机工程水轮机模型复核试验 The check test of model turbine of WUQIANGXI expansion	2×250	2018
30	引汉济渭黄金峡水利枢纽水泵模型复核试验 The check test of model PUMP of HUANGJINXIA	6×160	2018
31	广东阳江抽水蓄能电站水泵水轮机模型同台复核试验 The check test of model pump-turbine of YANGJIANG	4×300	2018
32	福建周宁抽水蓄能电站水泵水轮机验收试验 The acceptance test of model pump-turbine of ZHOUNING	4×300	2018
33	福建永泰抽水蓄能电站水泵水轮机验收试验 The acceptance test of model pump-turbine of YONGTAI	4×300	2019
34	河北丰宁二期抽水蓄能电站水泵水轮机变速机组验收试验 (安德里茨) The acceptance test of model pump-turbine of FENGNING II (ANDRITZ)	6×300	2019