

节能

ISSN1004-7948

CN21-1115/TK

10
2013

ENERGY CONSERVATION

第32卷 第10期 (总第373期)

● 密闭式冷凝水回收技术

● 低位热力除氧技术

国家发改委“最佳节能实践”案例源企业
蒸汽热力系统节能技术设备专业服务公司

当热力系统领域里最好的医生
做热力系统领域里最佳的药品
是热力系统领域里最真的伙伴

服务范围:

- 密闭式高温冷凝水回收成套装置
- 低位热力除氧器成套装置
- 工业乏汽回收与利用成套装置
- 锅炉自动排污成套装置
- 蒸汽喷射热泵系列
- 高效节能疏水阀系列
- 热力系统诊断、评估及优化集成

○十五年的技术实践经验, 近四百家的应用客户业绩, 节能率15%~30%, 投资回收期3~6个月

○全国十几家代理机构、7个办事处, 组成快捷、周到的销售及务网络

○可按世行“合同能源管理”模式进行项目操作

○专利证书号: ZL93213495.5



ISSN 1004-7948



9 771004 794004

万方数据

单位名称: 大连汇能科技股份有限公司

地址: 大连市软件园路80号大连理工大学科技园大厦B座301室

联系人: 徐昶斗

邮编: 116023

电话: 0411-84890011 84890033

传真: 0411-84890022

http://www.dl-hn.com

E-mail: xcd8489@163.com

节能 (月刊)

Jieneng

中国核心期刊(遴选)数据库全文收录期刊
中国学术期刊综合评价数据库(CAJCED)统计源期刊
中国期刊全文数据库(CJFD)全文收录期刊
中文科技期刊数据库全文收录期刊
1981年创刊 第32卷第10期(总第373期)
2013年10月15日出版

主管:辽宁省科学技术厅
主办:辽宁省科学技术情报研究所
辽宁省能源研究会

主任/主编:金娜

副主任:王建成

责编:佟昕

编辑:高峰 董媛媛 赵博

助理编辑:苏蔚

电话/传真:(024)23933125(编辑部)

(024)23940370(广告部)

电子信箱:jieneng1981@vip.sina.com

出版:《节能》杂志社 邮编:110181

地址:沈阳市高新技术产业开发区浑南二路8号

网址:www.china-energy-conservation.com

印刷:沈阳中科印刷有限责任公司

订阅:全国各地邮政局

国内发行:辽宁省邮政公司报刊发行公司

国外发行:中国国际图书贸易总公司

邮发代号:8-150 国外:M5170

刊号:ISSN1004-7948
CN21-1115/TK

广告经营许可证号:2101001500026

开户名:辽宁省科学技术情报研究所

开户行:中国建设银行沈阳建行鲁美支行

账号:21001383908052504526

定价:每期10.00元 全年120.00元

目次

论坛

广东高校节能减排对策研究 洗灿标,齐水冰,李连和,等(4)

降低岩棉生产能耗技术的研究 王晓磊(11)

研究与探讨

轴向裂纹对U型管强度的影响 魏明业,刘景新,刘乃江,等(17)

烟气余热回收过程中有机热载体热工参数的优化与控制 马海博,孙浩,李筱劼,等(23)

供热节能评价体系及节能量建模研究 汪思源,尹冰玉,王文标(28)

600MW超临界机组热效率等效热降计算分析 张冰(33)

有机朗肯循环发电系统利用的研究 刘广林(37)

石化行业节能

热泵回收污水余热技术在油田采暖中的应用 惠喜强,包新善,惠刚,等(40)

冶金行业节能

干法除尘配套湿法净化技术在电石炉尾气治理中的应用 李晓辉(44)

建筑行业节能

地下商业建筑负荷分析及空调系统节能设计 严伟林,叶昱程(48)

节能设备

智能家居系统的应用 马蕊,王福林(51)

煤泥低温干燥提质技术的研究与应用 郑汝,吴伟伟(55)

硝酸铵水溶液罐式集装箱的安全质量要求及其节能分析 胡赠彬,姚建(58)

基于PLC的煤气混合加压及热值自动控制系统 卢河川,孙艳杰,谢志英(61)

多功能水泵控制阀在循环水泵站中的应用 冯德华(64)

事故与故障

锅炉排污水回收改造节能效益分析 许彦雷,王京东(66)

沥青废水再利用新途径的探索与实践 张智勇,张海英,刘淑雯,等(68)

JG型高压加热器泄漏分析及堵管工艺探讨 赵万凯(70)

华能巢湖电厂1#机组冷却塔喷淋装置节能改造 张世宏,孙立春,樊岩(74)

Energy Conservation (Monthly)
Sponsor: Liaoning Provincial Institute of Science and Technology Information
Publisher: Energy Conservation Magazine Publishing House
Chief Editor: JIN Na
Address: No. 8, Hunnan 2 Road, Shenyang high-tech industrial development zone, Shenyang City, Liaoning Province, China
Post Code: 110181

CONTENTS

Oct. 2013 Vol. 32, No. 10 Total Issue No. 373

Research on Guangdong universities of energy-saving emission reduction measures

XIAN Can-biao, QI Shui-bing, LI Lian-he, et al
 (Guangdong Vocational College of Environmental Protection Engineering, Foshan 528216, China)

Abstract: The energy conservation and emission reduction in colleges and universities is the inevitable choice of constructing economical campus. Low carbon and resource recycling in solving the bottleneck problem of management and technology for energy conservation and emissions reduction is a beneficial attempt and to achieve energy conservation and emission reduction in colleges and universities of technology breakthrough and innovation. Combined with energy-saving lamps, college campus trash classification, eat hutch garbage recycling three aspects, this paper expounds the Guangdong Vocational College of Environmental Protection Engineering in recent years in energy conservation and emissions reduction methods of concrete measures and innovation of practice, analysis of social and economic benefits generated by the energy conservation and emissions reduction, tries to use it as a boot mode, energy saving and emission reduction in colleges and universities in more play a demonstrative role in colleges and universities.

Key words: energy conservation and emissions reduction; low carbon campus; campus trash classification; eat hutch garbage recycling; energy saving lamp

4

The effect on the strength of U-tube with axial crack

WEI Ming-ye, LIU Jing-xin, LIU Nai-jiang, et al
 (Tangshan Special Equipment Supervise and Inspection Institute, Tangshan 063000, China)

Abstract: U-tube is widely used in chemical equipment. Under high temperature and pressure it is easy to emerge crack at the elbow of the U-tube, the cracks seriously affected the stress distribution on the U-tube and it seriously reduced the carrying capacity of the U-tube. By using ABAQUS software analysis the U-tube which exists axial crack, it can get the influence on the strength U-tube which own different length, depth and the interaction between several different locations on the U-tube crack. The results show that the ratio of the crack length and depth is smaller, the effect on the strength of the U-tube is smaller, the greater on the contrary; the influence of cracks longitudinally aligned on the strength of the U-tube is much greater than the cracks horizontally aligned; as the increases of depth on crack the stress concentration at the bottom and the end will gradually stabilize or even decrease; the influence on strength of the crack inside the U-tube is much larger than the cracks located elsewhere.

Key words: U-tube; crack; finite element analysis; stress concentration; strength

17

Optimum control for thermal engineering parameters of the organic heat carrier in the waste heat recovery

MA Hai-bo, SUN Hao, LI Xiao-jie, et al
 (School of Energy Science and Engineering, Central South University, Changsha 410083, China)

Abstract: The most vital factor in the waste heat recovery-coking of the organic heat carrier is present. Thus, we take the advantages of the applications of the principles in heat transfer and numerical simulation to study how the thickness of the coking matters the performance of heat transfer and how the temperature on the heat exchangers distributed. As a result, we have put forward a optimal strategy to adjust the thermal engineering parameters of the organic heat carrier during the process of waste heat recovery. With the application of this method, large quantities of energy would be saved. A promising future of this method is just around the corner.

Key words: waste heat recovery; coking; temperature distribution; optimal strategies; energy-saving

23

Research on energy-saving evaluation system for heat-supply and the establishment of energy-saving quantity evaluation model

WANG Si-yuan, YIN Bing-yu, WANG Wen-biao
 (College of information science and technology, Dalian Maritime University, Dalian 116026, China)

Abstract: There exists a universal phenomenon in the field of heat-supply, that is high consumption with low efficiency and poor thermal environment. As an effective means to promote and achieve energy saving, research on the establishment of evaluation index system and evaluation methods has become an important issue to be solved. According to the problem that currently studies of energy-saving assessment mostly focus on qualitative analysis rather than quantitative analysis, resulting in the lack of scientific and feasible quantitative evaluation theory, with the aid of the Internet of things, based on the benchmark model of energy consumption, under the constraint of energy consumption correction, a energy-saving quantitative evaluation model of buildings heat-supply system was proposed. Combined with energy consumption data of a university, the conclusions showed the reliability and superiority of the revised model, which finally provided a powerful theoretical support for the scientific evaluation of energy-saving effect and Energy Management Contracting.

Key words: heating system; energy-saving assessment; correction coefficient; energy-saving quantitative model; Energy Management Contracting (EMC)

28

Study on the utilization of organic Rankine cycle power generation system

LIU Guang-lin
 (Beijing Key Laboratory of Multi-Phase Flow and Heat Transfer of Low-Grade Energy, North China Electric Power University, Beijing 102206, China)

Abstract: The system performance of an ideal power generation system is normally closely related to the temperatures of the heat and cold sources; however, in reality, except for the heat and cold sources temperature, the factors such as the working fluids and the forms of the systems all can affect the system performance. Because of the influences of the heat source temperature and optimization targets, the suitable formula and system forms are still unavailable. So, based on the various properties of the different heat sources, to explore proper system forms and working fluids to provide scientific basis for the application of ORC power generation systems is the key to effectively use of the ORC power generation systems.

Key words: Organic Rankine Cycle; low-grade energy; energy-saving

37

Load analysis and air-conditioning system design for underground commercial buildings

YAN Wei-lin, YE Yu-cheng
(Hangzhou Energy Monitoring Center,
Hangzhou 310004, China)

Abstract: With the development of underground commercial buildings, the suitable air-conditioning system can create comfortable environment for people. On the basis of the load analysis of underground commercial buildings, the suitable air conditioning system is designed in the paper. The design can achieve the purpose of comfort and energy-saving.

Key words: underground commercial buildings; load; air-conditioning system; energy-saving; design

48

Coal low temperature drying and upgrading technology research and application

ZHENG Ru, WU Wei-wei
(Shandong Tianyuan Energy-saving Environmental Engineering Co. Ltd., Xintai 271221, China)

Abstract: In order to improve the profits of the coal mine, to reduce production costs, improving quality of low temperature dryingslime coal washing system. The results show that the slurry is dried in a low temperature, not only improve the coal combustionvalue, put an end to the coal slurry pat phenomenon. At the same time, improving efficiency achieves the purpose of environmental protection.

Key words: slime drying; upgrading; energy conservation and environment protection

55

Discussion on the energy efficiency and safety control of ammonium nitrate solution container

HU Zeng-bin, YAO Jian
(Yunnan Institute of Special Equipment Inspection Test, Kunming 650028, China)

Abstract: By presenting and analyzing the application of ANS in energy saving and environment-friendly production process, and considering the fact that ANS is categorized into dangerous chemicals that are highly flammable and combustable, this article thoroughly illustrated potential safety weak points that hide in the production, transportation and usage of ANS. We also proposed specific safety rules for regulating the design, production, safety inspection of ANS tank container, which will more or less benefit personnels of this field while they are designing, producing and mananging the tank container.

Key words: Ammonium Nitrate Solution; tank container; energy efficiency; quality control

58

Automatic control and self-regulation system of adding pressure station with the mixed coal gas based on PLC

LU He-chuan, SUN Yan-jie, XIE Zhi-ying
(Tang shan steel weier Automation Co. Ltd.,
Tangshan 063000, China)

Abstract: In order to solve the difficulty that the mixed gas's pressure and calorific values fluctuate greatly in process control, an automatic control method of adjustment heat value and pressure based on the

PLC was proposed. And the way how to realize was introduced in detail. The system has got a good effect in the application. The fluctuations in heat value and pressure of mixed gas can be kept at a low level, and has strong anti-disturbance ability against the external interference.

Key words: adding pressure with the mixed coal gas; calorific value adjustment; pressure regulation; control model; PLC

61

Application of multifunctional pump control valve in the pump station

FENG De-hua
(Xuanhua iron and steel Co. power plant,
Zhangjiakou 075100, China)

Abstract: The sturcture of multifunctional water pum control valve and the using feature are proposed. The advantage of multifunctional water pump control valve is put forward. The result shows that multifunctional water pum control valve is wrothy of promoting.

Key words: multifunctional pump control valve; water hammer; pump station

64

Exploration and practice on new way of sphalt waste-water reuse

ZHANG Zhi-yong, ZHANG Hai-ying, LIU Shu-wen, et al
(Anyang Iron and Steel Stoup Co. Ltd.,
Anyang 455004, China)

Abstract: Asphalt warehouse for coking plant wastewater into the sewage treatment system can not be analyzed, the transformation program. Through the addition of filtration and set the buffer pool elevation openings, install filtration screens, and use of the original collection pond will be sent back to the asphalt cooling pond wastewater reuse, reduce the burden of biological treatment to reduce coking wastewater emissions, reduce environmental pollution.

Key words: wastewater; make use of again; filter mesh

68

The efficiency improvemens reform of unit one cooling tower spray device in Huaneng Chaohu power plant

ZHANG Shi-hong, SUN Li-chun, FAN Yan
(Huaneng power generation Co. Ltd.,
Chaohu 238015, China)

Abstract: Based on the theory of improving the condenser vacuum by lowering the temperature of the cooling tower water, by the comparative study of splashing device of XPH swirling type and JNX-031 rotating type in water spray, combined with the application effect of JNX-031 type rotating spray device in the unit one, we found it can make the condenser vacuum of unit one to increase 0.78 kPa before reform, the temperature of cooling tower water to decrease 1.51 ℃, can save more than 3750 tons standard coal each year. The results show that there are popularization and application value of JNX-031 type rotating spray device in cooling tower of the large sets.

Key words: cooling tower; spitting device; reform; benefst analysis

74

企业名录

- * 盘锦环帮节能设备有限公司 * 辽宁省锅炉技术研究所 * 江苏广旭热管科技有限公司
* 北京德晖炉窑有限公司 * 沈阳市建功能源技术研究所 沈阳市建功能源环保有限公司