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to forecast heat value of produce gas and emissions characteristic of the sour gas, it made the tentative data reappearance very good. In the training process, the erroneous monotonous drop fast, indicated that this network's learning capability is very strong. Model forecast experiment operating modes very well, both of error's magnitude of predicted value and experimental value are in 10^{-6}。
Key words: scrap tire colloidal particle; gasification; neural network

Distributed variable frequency pump heating system compared with traditional heating system energy saving

ZHANG Xiao-xia, ZHANG Jie
(Hebei University of Engineering, Handan 056001, China)

Abstract: Heating engineering is closely related to people's production and living, with the continuous development of city planning and construction, people's demand for energy is becoming more and more big, many northern cities of central heating system has been adopted to save the energy consumption. Distributed variable frequency pump heating system is a new type of heating form, the characteristic of the circulating pump distributed in the pipe network layout is better than the heating pipe network circulating pump layout in the heat source. In order to study its energy saving effect, in this paper, by analyzing the contrast between the basic operation principle and the water pressure diagram of them, and combined with engineering example, it is concluded that the distributed variable frequency pump heating system has a good effect in energy saving. We should promote it.
Key words: distributed variable frequency pump; heating system; operation principle; water pressure diagram; energy saving

Application of energy bus system in a community building

GAO Yue-fen, NAN Shan-shan
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Abstract: Energy bus system can effectively utilize the renewable energy and unused energy in community, and integrate it in time and space to meet the supply and demand balance of community building energy. According to the resource supply and load demand of a community in Baoding, a set of energy bus system scheme of surface water source, soil source, cooling tower and solar energy is proposed, and facility allocation of the planning is studied. The energy usage and carbon emission of energy bus system are compared with the traditional energy system. the results showed that compared with the traditional energy, the primary energy efficiency of energy bus system improved by 0.05, the energy loss reduced by 17.19×10^{6} GJ. The effect of energy saving and emission reduction was remarkable, the relative energy saving rate reached 0.11, and emission reduction rate of CO_2 was12.70%.
Key words: energy bus system; renewable energy; community building; allocation; energy planning

Building water supply and drainage PPR pipe insulation layer of delay freeze computation model

ZHU Shao-yi, ZHAO Jing-de
(Dezhou Kaiyuan Thermoelectricity Co. Ltd., Dezhou 253034, China)

Abstract: Established a building water supply and drainage PPR pipe insulation layer of delay freeze calculation model. Proposed calculation method for PPR pipes delay freezing of insulation thickness. Analysis and compared the results of this method and Code for design of industrial equipment and pipeline insulation engineering, and Guide for design of thermal insulation of equipments and pipes is for building water supply and drainage pipe delay freeze insulation layer thickness calculation, to given the reduced rate of common PPR pipeline delay freeze insulation layer thickness of and the save volume of insulation material. In order to provides reference for the design calculation of building water supply and drainage delay freeze insulation layer thickness.
Key words: PPR pipe; delay freezing; insulation thickness; pipe thermal resistance; insulation material savings

Optimization suggestions and performance analysis of water source heat pump heating system

LI Wen-lei, ZHANG Yue, FAN Yao, et al
(College of Energy and Environmental Engineering, Hebei University of Engineering, Handan 056000, China)

Abstract: The construction and application of water source heat pump in a northern residential heating project as an example, the test of winter heating operation of this system, and the test results are analyzed, calculating the energy efficiency ratio of the system and each part of the system energy consumption. According to the test results and the actual operation of the system, the paper puts forward some reasonable suggestions.
Key words: water source heat pump; test; energy efficiency ratio; energy consumption.

Energy consumption statistics and energy saving analysis of a passenger car manufacturing plant

WU Da-de, LI Cheng-lin, WANG Dong-jie
(HuBei Procince Engineering Consulting Company, Wuhan 430070, China)

Abstract: Focusing on a bus manufacturing company in Wuhan , the analysis of the company in a normal year needed for the production of energy consumption structure mainly for electricity, natural gas, carbon dioxide, diesel, argon and fresh water, the energy consumption in electricity and natural gas. The consumption direction of the company's energy is statistically analyzed. The comprehensive energy consumption, the comprehensive energy consumption value and the total energy efficiency level of the per unit output value of the company are obtained, and the comprehensive energy consumption of unit products is analyzed by analogy. Finally, according to the characteristics of the enterprise, combined with the idea of energy saving, specific and effective energy saving measures are put forward, which can provide reference for energy-saving problems of similar enterprises.
Key words: bus manufacturing company; energy structure; unit product of comprehensive energy consumption

Operation optimization of central heating system from chemical industries waste heat source

LIU Lin , ZHAO Bin, GAO Ming-fei, et al
(College of Metallurgy and Energy, North China University of Science and Technology, Tangshan 063210, China)

Abstract: The chemical industry is rich in low-temperature waste heat resources, while the use of waste heat for winter heating can effectively reduce the environmental pollution in the northern towns. From the analysis of replacing waste hot water of Sanyou Chemical Industries Company Limited with low vacuum heat source of the power plant, absorption heat pump and steam water heater through the establishment of mathematical model is selected and transformation of heat source of central heating system in Nanbao development zone of Tangshan is carried out; through the operation analysis of the heating system of lithium bromide absorption heat pump unit, the operational optimization strategy and method are put forward. The results show that the heating mode of the heat pump unit and the steam water heat exchanger can be used in parallel to ensure the heating quality, and the effect of energy saving is obvious. The results of the study can provide reference for the transformation and operation of the chemical industries waste heat source heating system.
Key words: central heating; replacement of waste heat source; selection of the main engine; operation optimization