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For more information,
please scan or email & call us.

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排版及薄纸印刷

NSP®
US-China joint venture
NuoSai
pumps

Nuosai continuously improves and innovates products. If the technical parameters change, the changed data shall prevail.

2022.12

NSP®

ENERGY SAVING
CIRCULATING PUMP
BEYOND IMAGINATION

ENERGY SAVING

The leader of energy-saving water pumps
——Save electricity, contact NuoSai

Contents

70,000m² +
Plant

200 +
Equipment

500 +
Staff

50 +
Patents

100,000 +
annual output

NSP®
US-China joint venture

Originated from the USA Energy-saving China

NuoSai (China) is a joint venture established in China by VELANS (Group) of the United States.Specilized in research and development of efficient, safe and intelligent pump system solutions for HVAC systems and water supply industries.

As an integrator of energy-saving pump system solutions, Nuosai (China) focuses on fluid pumping technology for HVAC water supply, which is used for district heating, district cooling, domestic hot water circulation, domestic heating circulation, domestic water supply booster and water supply management. NuoSai is a premium supplier of energy-saving pumps and pump systems from China ,Our Customers benefit from our commitment to energy-saving innovation, performance and quality, as well as our rapid response service network throughout market, to achieve zero emissions and climate "carbon peak carbon neutral" goals.

China Energy Conservation Product Certification

National Invention patent

Contract Water Saving Management Service Certification

ENERGY SAVING

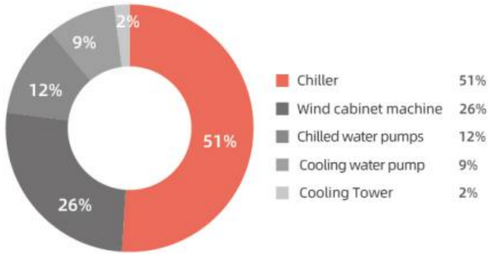
HVAC circulating water system

HVAC circulating water system uses water as the medium for the exchange and transmission of cold (heat) energy in the heating and cooling process, and mainly relies on the circulating water pump as the power source to drive the circulating water flow.

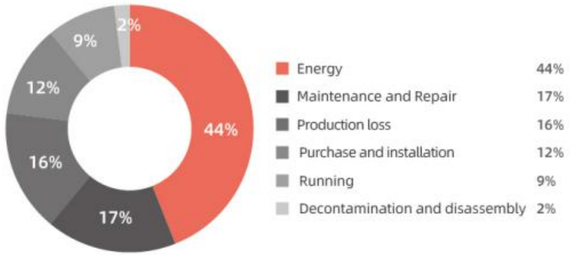
The ever-increasing demand for low-carbon and energy-saving puts problems forward NuoSai: how to protect resources and use energy more efficiently and economically? How to reduce carbon footprint?

The developed of Nuosai energy-saving and high-efficiency pumps . Help Our Partner and HVAC users solve these tasks and problems, and are widely used in district heating, district cooling, commercial heating, domestic hot water circulation, domestic heating circulation, domestic water supply pressurization and other fields.

Power consumption diagram of each component of the circulating water system



循环水泵全生命周期成本占比图



NSP®
US-China joint venture

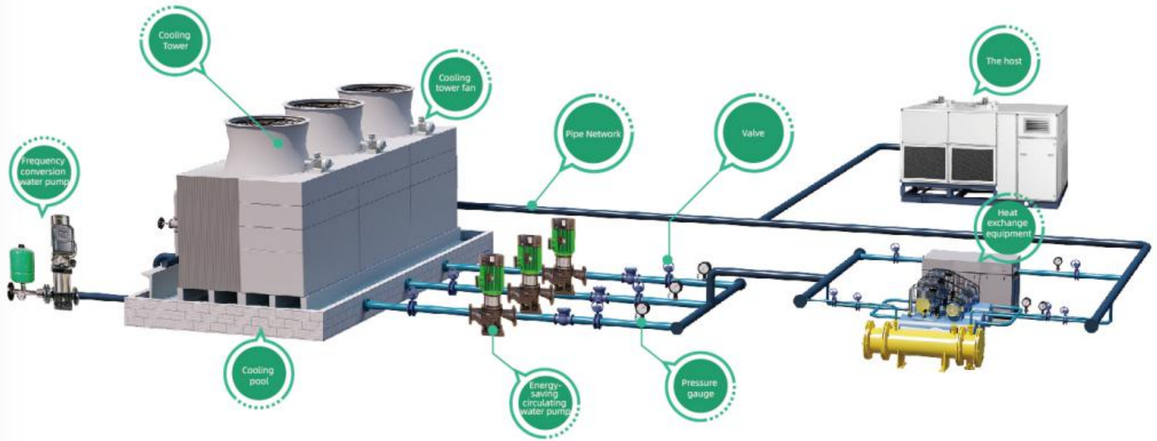
Pump energy saving is urgent

According to the statistics of the Bureau of Industry, the power consumption of water pumps in the circulating water system accounts for about 10% of the country's power generation, and the circulating water consumption accounts for about 70% of the total industrial water consumption. The energy consumption and water consumption are huge. In the HVAC water circulation system, 28% of its energy is consumed by the circulating pump group, so it is urgent to save water pumps.

28%

Circulation pump consumption

Energy consumption distribution of HVAC refrigeration circulating water system



NSP®
US-China joint venture

4 unique advantages

ENERGY SAVING

Unimaginable energy-saving circulation pump

- Nuosai patented stainless steel stamping impeller
- CFD high-efficiency flow channel design
- Flow channel Coating Energy Saving and Efficiency Enhancement
- First-class energy-efficient motor

1

Nuosai invention patent

Stainless steel stamping impeller

10%

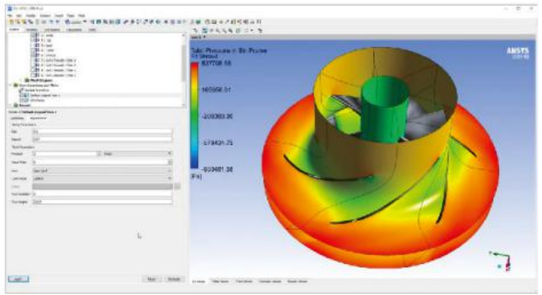
Pump efficiency

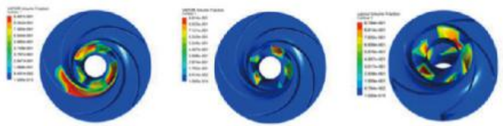
Computer simulation

Optimized impeller design is gentle and hump-free

We adopt the direct ternary flow theory, analyze the flow field inside and outside the pump through modern numerical calculation methods, use fluent to simulate 3D flow simulation, and use rapid prototype testing to optimize the accuracy of the blades. The operating error flow rate does not exceed 5%, and the head does not exceed 3%. , The flow surface is smooth, so as to meet the appropriate fluid delivery requirements.

Compared with the traditional pipeline pump, the stainless steel stamping impeller flow channel has a smoother and longer flow channel and a larger blade wrap angle, which ensures a smooth flow and head curve without humps.



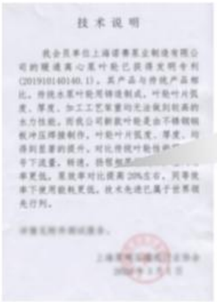


Break through the limitations of traditional casting

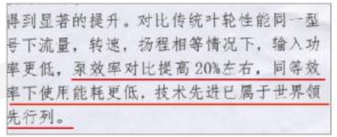
Won the national patent (invention patent number: 3879573) and association certificate

National Invention patent

National Patent Office



Association certificate



National Fluid Technology Association

Lean manufacturing

Reliable and Stable

NouSai tests the impeller material for tensile strength to ensure that the pump can withstand even harsh operating conditions.

The stainless steel impeller adopts laser full welding process, and its geometric accuracy and surface finish are superior to those of cast impellers. There is no scaling on the surface, no cavitation, and the pump efficiency is greatly improved.

- lighter weight
- Interchangeable with cast impellers
- Higher water efficiency
- Flow channel mirror smooth
- Not easy to scale

Laser welded impeller

cast impeller

2

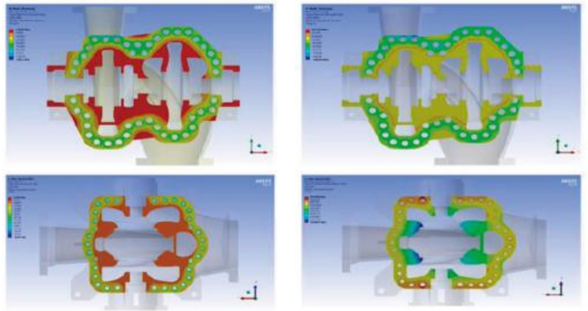
CFD
high-efficiency flow channel design

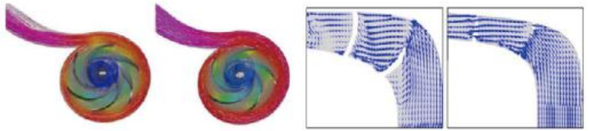
5%
Performance improvement

CFD fluid simulation

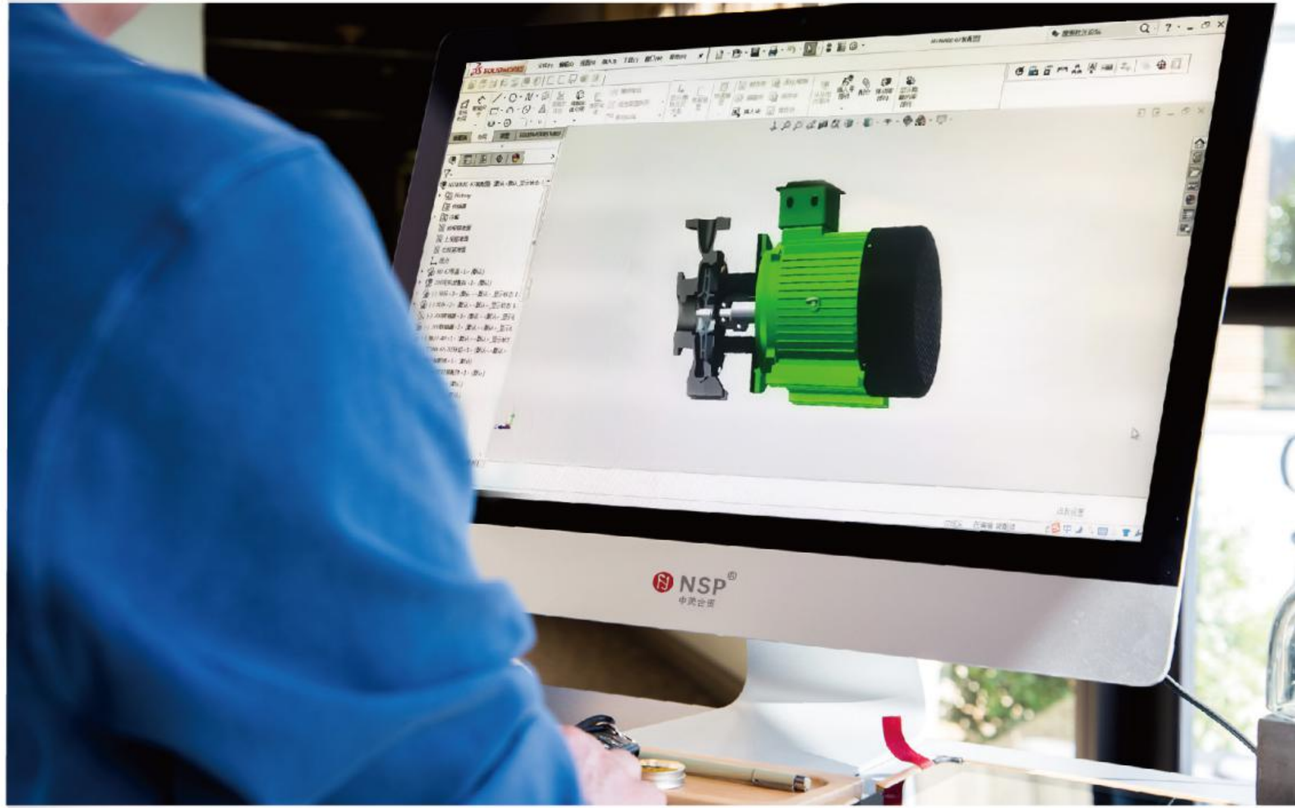
Eliminate flow channel Energy Loss

We use the latest technology from American Velans to analyze the flow field inside and outside the pump to improve pump efficiency and reduce operating costs. Compared with the flow channel of the traditional pipeline pump, the base circle of the pump body is smaller, and the flow channel partition tongue is more precise, which basically eliminates the energy loss caused by the vorticity of the medium in the flow channel of the pump body, and improves the pump efficiency.





Before optimization Optimized Before optimization Optimized



3

Fluid Part Coating Energy Saving and Efficiency Enhancement

3-5%
Performance improvement

The smoothness of the new casting process can reach 25μ

The hydraulic loss accounts for a large proportion of the factors affecting the working efficiency of the pump, and the rougher the wall surface of the pump flow part the greater the loss

Nuosai high-efficiency energy-saving pump rough casting all adopts precision casting, and the surface smoothness of the casting can reach 25μ, which reduces the machining surface and greatly reduces the generation of cutting stress. All of its casting adopts new coated sand casting process, which is unmatched by traditional pipeline pumps.

Polymer composite material coating energy saving and efficiency enhancement

Nuosai absorbed the innovative technology from the United States and applied the anti-corrosion, abrasion and cavitation polymer composite coating to the pump body and other components. The flow reduces the volume loss and hydraulic loss in the pump, and reduces the power consumption, thereby increasing the overall efficiency of the pump by 3%-5%, and improving the pump efficiency.

4

Nuosai High-efficiency and energy-saving motor **1E1**

8%

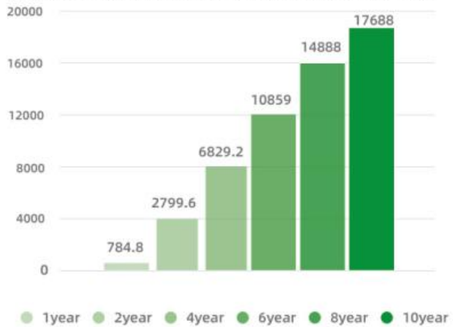
Energy efficiency improvement

Perfect match of water pump, motor and frequency converter Pump efficiency is more perfect

The data shows that the electrical energy consumption of the motor system accounts for 64% in the industrial field, 20% in the commercial field, and 13% in the civil construction field. The energy saving and efficiency enhancement of motors has become an important way to save energy in HVAC

Most of Nuosai energy-saving circulating pumps are equipped with first-class energy-efficiency motors. The heavy investment in IE1 motors can not only improve the efficiency of the pump system, but also help reduce energy consumption and help alleviate climate change. Help customers and end users significantly reduce costs, so that product life cycle costs have been further reduced.

Return on investment (the data from Chinese market for reference only)



* Take one unit with one standby unit as an example, the electricity cost is 1 RMB (Yuan) /kWh, and it works continuously for 24 hours (8760h/year)

* The difference in equipment price can be recovered by saving electricity bills within one year.

Nuosai has integrated the deep understanding of high efficiency and optimal operation into Nuosai motors, combined with the reliability of the motor, to bring our customers an unparalleled level of efficiency and shorten the return time of the pump investment.

Project (5.5Kw One use and one standby unit)	Nuosai frequency conversion integrated motor	Asynchronous IE3 motor ABB inverter	Return
Equipment unit price	¥ 3794	¥ 3179	¥ -615
(Initial investment fee(One use and one standby)	¥ 7588	¥ 6358	¥ -1230
1 year electricity bill	¥ 15388.4	¥ 17403.2	¥ 2014.8
1 year maintenance fee	¥ 0	¥ 0	¥ 0
1 year total investment cost (Initial investment + maintenance fee + electricity fee)	¥ 22976.4	¥ 2761.2	¥ 784.8
2years electricity bill	¥ 30776.8	¥ 34806.4	
2years maintenance fee	¥ 1100	¥ 1100	
Total investment expenses for 2 years (Including Consumable parts are replaced every 2 years)	¥ 39464.8	¥ 4264.4	¥ 2799.6
10years electricity bill	¥ 153884	¥ 174032	
10years maintenance fee	¥ 13088	¥ 11858	
10-year total investment expenses (Equipment is based on 10 years of renovation)	¥ 174560	¥ 192248	¥ 17688

It's time to change the status quo - Nuosai (China) Helping you lead the "Carbon Reduction Race"

This is an opportunity for us - to help the HVAC and water supply industry reduce its carbon footprint in an efficient manner. Our users are experiencing the effects of climate change and aging infrastructure, high energy consumption。

Nuosai (China) has set the goal of net zero emissions and climate "carbon peak carbon neutrality", and uses Nuosai's unique energy-saving technologies and products to achieve this goal efficiently and economically,helping users optimize operations while reducing greenhouse gas emissions.

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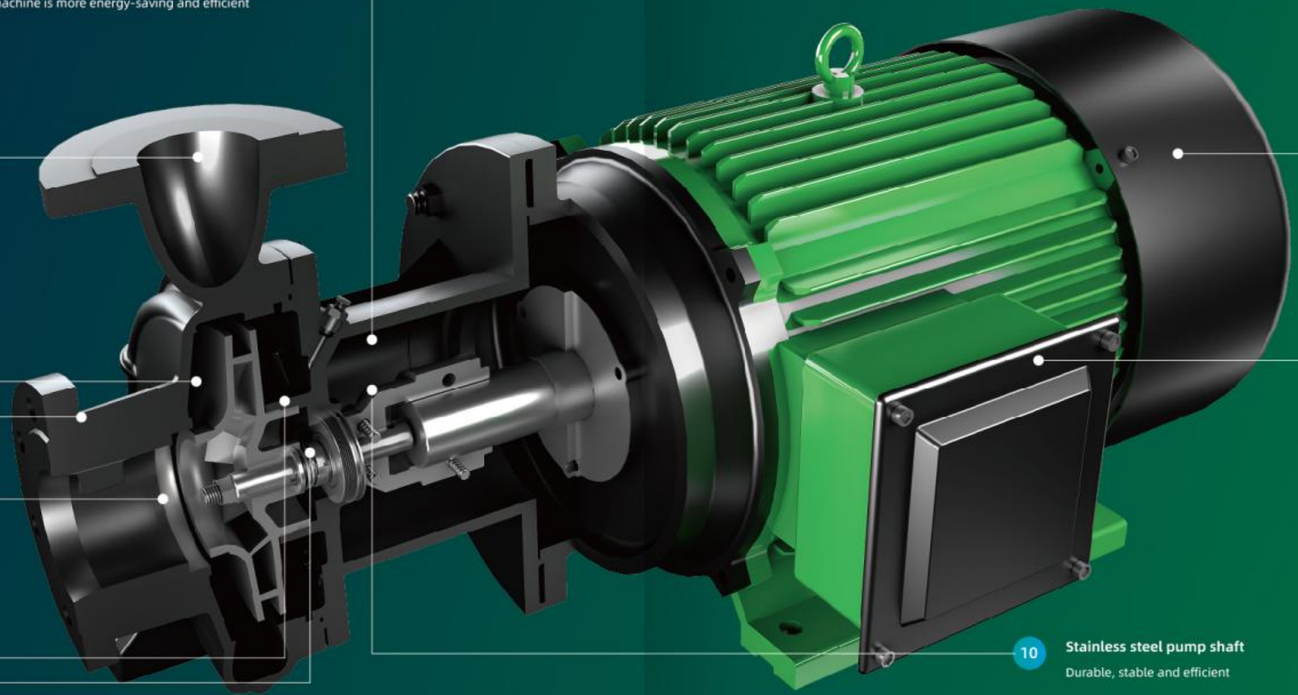
New forces for all-round energy-saving



1 CFD fluid simulation

Through the CFD fluid simulation analysis technology, the hydraulic model is optimized, and the whole machine is more energy-saving and efficient

2 Stainless steel stamping impeller

Stainless steel stamping impeller, high efficiency, no fouling

National invention patent
ZL 2019 1 0347334.9

3 Water distributor

4 A3 steel wear-resistant buckle

5 Machinery Seal

Extended mechanical seal
More stable operation and better sealing effect

6 Detachable design

Detachable design, more convenient to replace the seal

Utility model patent
ZL 2018 2 1881465.2

7 split coupling

8 Efficient motor

High-efficiency motor, F-class insulation, protection class IP55, safer operation and less noise

Appearance patent
ZL 2022 3 0122697.5

9 Multi-directional wiring

Junction box structure multi-directional wiring

10 Stainless steel pump shaft

Durable, stable and efficient

Scan the code for more details

Ultra-high machining accuracy
Ultra-Precise Balance Calibration

Annual production
100,000(Sets)

Fully automatic laser cutting

High cutting precision
The incision is smooth and clean, without burrs

5-axis machining center

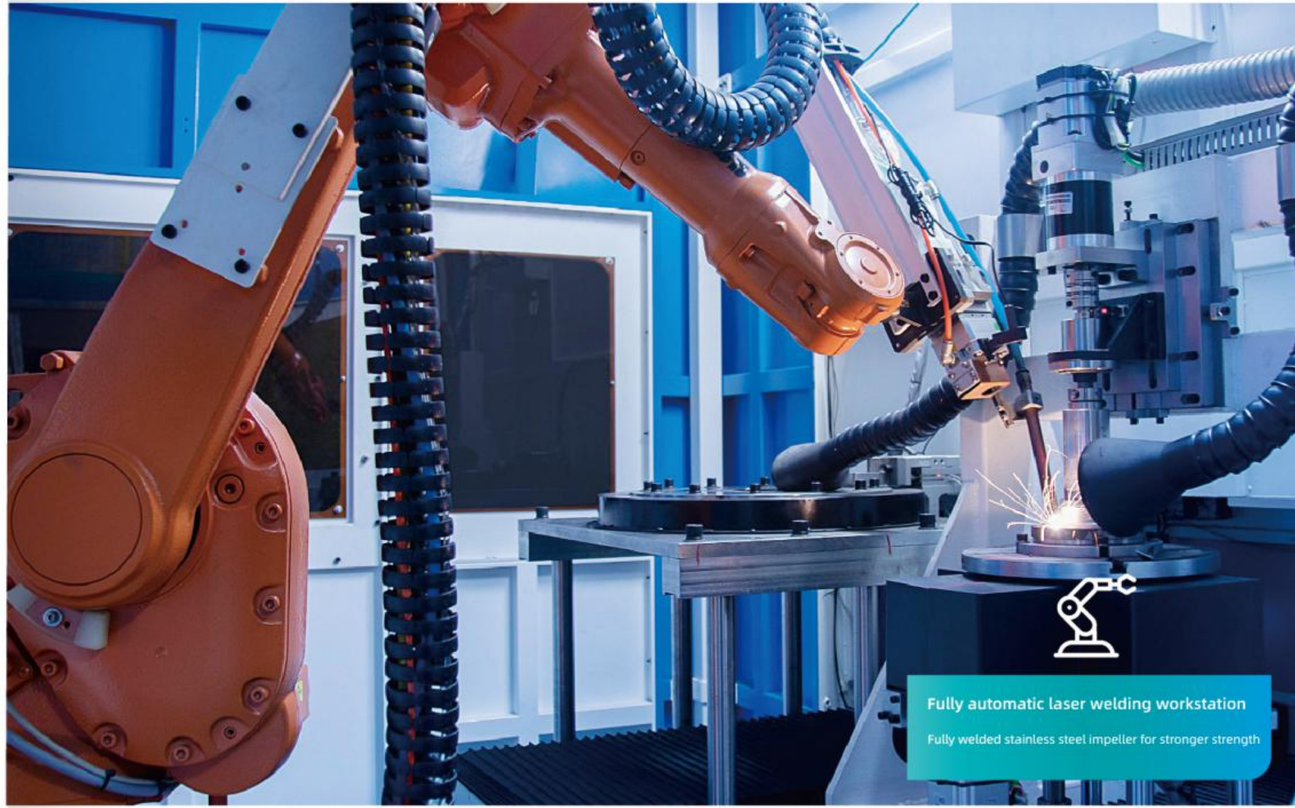
A number of performance tests to ensure high-quality factory

CNC machining center

High Precision Machining Center
Resolution is 0.1μm

National Testing Center

A number of performance tests to ensure high-quality factory



Fully automatic laser welding workstation

Fully welded stainless steel impeller for stronger strength

Rich energy-saving pump family

	small caliber(flow rate1~10m³)			Medium caliber (flow rate10~1200m³)			Medium caliber (flow rate10~1200m³)						Large Diameter (flow rate 1200~10000m³)	
Product type	 PWP Energy Saving Circulating Pump	 PWPA Energy Saving Circulating Pump	 PWPB Energy Saving Circulating Pump	 NSLAvertical energy-saving circulating pump	 NSWA Energy Saving Circulating Pump	 NSLP permanent magnet energy-saving variable frequency pump	 magnet variable frequency pump	 PMP Multi-stage energy-saving pump	 PMPA Multi-stage energy-saving pump	 PMPA energy-saving frequency conversion water supply pump set	 Energy saving flow control pump unit	 PWP horizontal energy-saving frequency conversion water supply pump set	 SNOW energy saving split double suction centrifugal pump	 1E1 motor
Application Scenario														
HVAC Boiler	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cooling and Heat Exchange System	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Domestic water supply system	●	●	●	○	○	○	●	●	●	●	●	●	○	●
Chilled water system	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Villas and other places	●	●	●	●	●	○	○	○	○	●	●	●	●	●
Food processing	●	●	○	○	○	○	○	●	○	○	●	●	○	●
Industrial water circulation system	○	○	○	●	●	●	○	○	○	○	●	○	●	●
Air Energy/solar	●	●	●	○	○	○	○	●	●	○	●	○	○	○

● Representative products apply ○ Denotes product not applicable

NSWA Energy Saving Circulation Pump

Application advantage

Full head full flow design

Connected Motor Standardization

Energy efficient

Coated sand casting process

Stainless steel stamping impeller high efficiency

Features

Detachable design, more convenient to replace the seal

Stainless steel shaft for long service life

Detachable bottom plate design, the overall load bearing is better

Dimensions meet IEC and DIN standards

Stainless steel protective cover

Surface electrophoresis treatment

Scope of application

HVAC cycle

Cooling water system circulation

Food processing water cycle

Industrial water circulation system

Equipment matching water cycle

Industry Difficulties

High energy consumption: The water pump electricity consumption accounts for about 20% of the national industrial electricity consumption in China

Low efficiency: Ignoring the high operating cost and low efficiency of the pump system in its entire life cycle

Carbon Peak·Carbon Neutrality" + "Double Control of Energy Consumption"

Solution

- Smart operation
  - Pump head efficiency
  - Motor efficiency
  - Condition design

Chinese invention patent
ZL2019 03473349.9
Utility Appearance Patent
ZL2018 2 1881465.2

Flow rate: 2-1200m³/h
Max Head: 85m
Max Power: 200kW
Max working Pressure: 16bar、25bar
Motor protection class: IP54/IP55
Medium temperature: -15℃~ +110℃

Microcomputer intelligent frequency conversion water supply pump set

Application advantage

Pressure adjustment

When the water is not replenished, the function of stopping the pump

Normal hydration

Water leakage detection, compensation function

Water shortage and pressure loss, protection function

Hydration setting

Inverter electronic protection function

Standby is fully functional

Features

Modularization, integrated circuits, comprehensive functions

Simple structure, convenient operation and maintenance

Good cooling effect, small footprint

Backpack, frequency conversion control for water replenishment

Wetted all stainless steel

Applicable water temperature 0-90℃

52dBA low noise

Waterproof type

IP：55 degree of protection

Scope of application

HVAC system replenishment

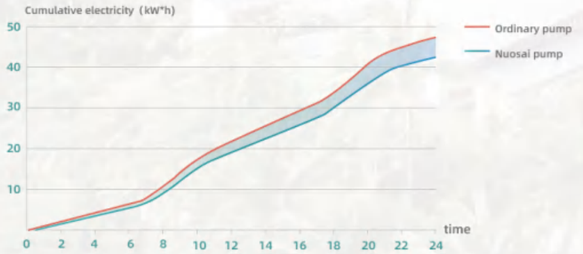
Cooling water system replenishment

Food processing water system hydration

Chilled water system replenishment

Pressure Boosting in villas and other places

Cumulative power consumption per day



Cumulative cost savings

Through the 24-hour cumulative power consumption value obtained from the test, it is calculated that the integrated motor on the water supply unit has an average daily energy saving rate of 11.57% compared with the asynchronous motor, and the average daily power saving is 5.52 degrees. The average annual electricity saving is 2014.8 degrees.

11.57%

Average daily energy saving rate

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NSLP Permanent magnet variable frequency integrated pump

Application advantage

high power factor
Overheating protection is safer
Large starting torque
Small starting current
Strong cooling capacity
High efficiency and low noise
Insulation class F, can be customized
Efficiency up to Class I Energy Efficiency (IE5)
Can withstand 200% rated torque overload
Low-speed running torque is smooth and vibration-free

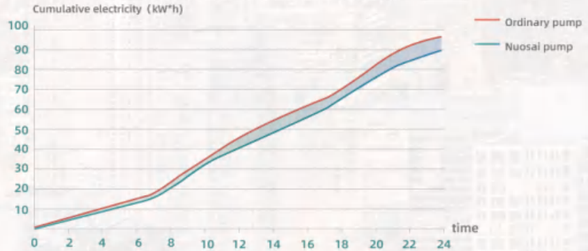
Features

Energy efficient
Detachable function
No fouling
Stainless steel stamping impeller
Stainless steel shaft
IP65 waterproof

Scope of application

HVAC cycle
Cooling water system
Food processing water cycle
Chilled water system
Industrial water cycle
Equipment matching water cycle

Cumulative power consumption per day



Cumulative cost savings

Through the 24-hour cumulative power consumption value obtained from the test, it is calculated that the integrated motor on the water supply unit has an average daily energy saving rate of 7.67% compared with the IE3 asynchronous motor, an average daily power saving of 7.45 kWh, and an average annual power saving of 2737.5 kWh.

7.67%

Average daily energy saving rate

Chinese invention patent
ZL2019 03473349.9
Utility model patents
ZL2018 2 1881465.2
ZL2019 2 0718622.6

Flow rate: 2-100m³/h
Max Head: 32m
Max Power: 22kW
Max working Pressure: 16bar、25bar
Motor protection class: IP54/IP55
Medium temperature: -15℃~ +110℃

NSOW Energy saving split double suction centrifugal pump

Application advantage

Energy efficient
Flexible installation
Grease-lubricated ball bearings
New shell linear design
High performance impeller
Shaft for easy maintenance

Features

SNOW energy-saving pump is a single-stage double-suction axial semi-open volute centrifugal pump, which can be installed horizontally or vertically. The driving end of the horizontal pump can be set on the left or right side of the pump according to requirements.
Flange drilling according to ISO, DIN, BS or ANSI standards

Scope of application

HVAC system
Cooling water system
Chilled water system
Waterworks
Industrial water supply system
Irrigation pumping station
Shipbuilding industry
Energy Saving

Fow rate：1000-10000m³/h
Maximum head：80m
Operating Voltage：16bar
Motor protection class：IP54/IP55
Medium temperature：-15℃~ +105℃

*The sum of the suction pressure and the head pressure at the zero flow point cannot exceed the specified value

The efficiency of the energy-saving double-suction centrifugal pump reaches or exceeds the national standard of GB19762-2007 "Limitable Values of Energy Efficiency and Evaluation Values of Energy Conservation of Clean Water Centrifugal Pumps" It is a green revolution in the water pump industry. It is a favorable tool for various enterprises and fields to reduce operating costs, save energy and increase efficiency. It is a good product for water pump replacement.

Widely used in water plants, paper mills, thermal power plants, steel mills, chemical plants, irrigation area water supply, high-rise water supply, building fire protection, boiler water supply, industrial water supply and drainage, water conservancy irrigation and other fields, especially suitable for central air-conditioning water circulation, water circulation in engineering systems, The water circulation in the cooling system and HVAC system Etc. It is the tailor-made product for energy-saving transformation of the water pump and the ESCO management .

Serve customers better

Reliable

Remote diagnosis

Caring service

Why Choose Nuosai (China) to be your Save Energy Solutions. Except the advance save energy technology and the complete pumps ranges,below reason make NuoSai Pump more reliable partners

Reliable

Nuosai (China) will stand by your side at every stage of the project, using our expertise to enhance your competitive advantage through improved energy efficiency, ease of maintenance, increased production output and extended maintenance intervals.

Remote monitoring

Nuosai can analyze the operation of pump equipment, use remote monitoring to optimize maintenance intervals and reduce your operating costs.
We monitor your pump system 24/7, collect and store all relevant data. When unplanned outages occur, we can find the cause faster. With online monitoring and analysis, we help you optimize maintenance planning, reduce maintenance costs and increase availability at the same time

Caring service all the time

Fast turnaround minimizes disruption and keeps your projects on schedule
Deliver superior service solutions that can be implemented at any time to increase equipment reliability and availability.

Recommended new energy-saving products

Secondary water supply energy-saving pump system

For the actual application scenario of secondary water supply, Nuosai built a secondary water supply test platform with one use and one backup; its rated water supply capacity can be simulated as supplying an 18-story residential building with 4 households on each floor, and each The 24-hour water consumption curve of 5 residents in each household is as follows, taking the water supply of a residential building as an example; This method is also used for testing.

Nuosai Energy Saving Device

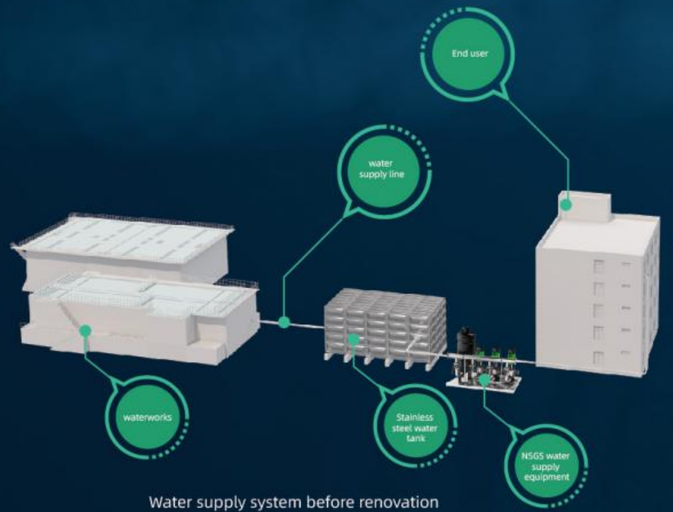
Permanent magnet variable frequency water pump

Recommended new energy-saving products

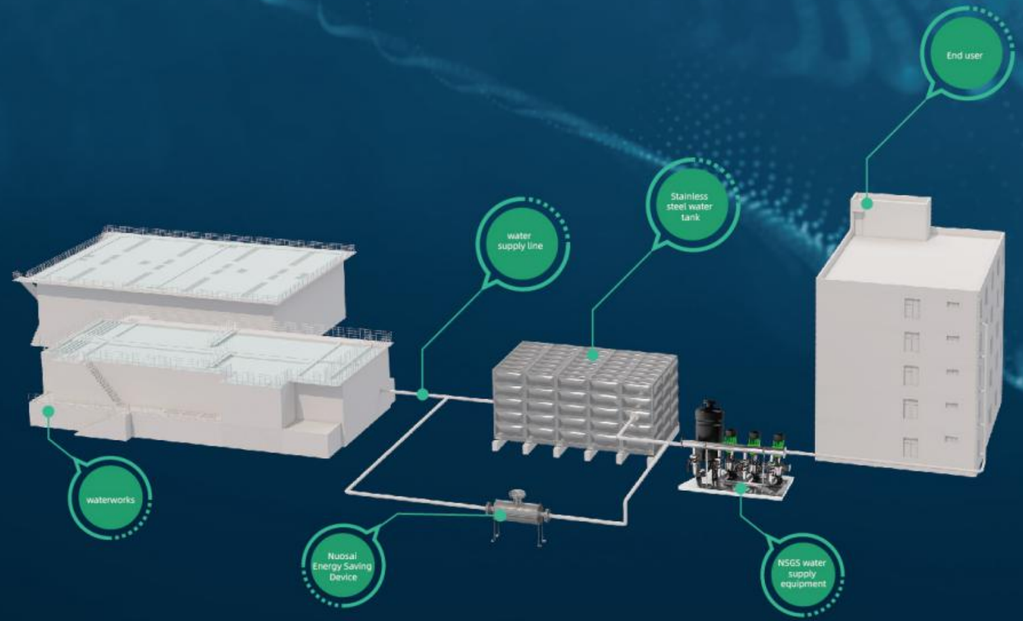
10%

Improve system efficiency

The efficiency of Nosai secondary water supply energy-saving water pump is 10% higher than ordinary CDL pump, 16% higher than DL/GDL, and the permanent magnet motor is 8% higher than IE2 motor.



Water supply system before renovation



Retrofitted water supply system