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Accessen | 随需应变的换热解决方案！
On Solution For Heat Exchanger

上海艾克森集团有限公司 Shanghai Accessen Group Co., Ltd. | 上海艾克森新技术有限公司 Shanghai Accessen New-Tech Co., Ltd. | 艾克森（苏州）传热技术有限公司 Accessen(Suzhou)Heat Transfer Technology Co., Ltd.

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Accessen 艾克森
ACCESSEN GROUP

板式热交换机组操作维护使用手册

Plate Heat Exchanger Unit Operation & Maintenance Manual

注意 / Notice !

请注意 Attention Please

我们提醒您，遵守安全规则是每个操作人员的责任。

注意介质、温度压力，为避免碰伤手，搬运金属组件时一定要做好相关的防护措施，戴好保护手套。

Please note that complying with safety rules is the responsibility of each operator.

Pay attention to the medium, temperature and pressure. Relevant protective measures should be taken while handling metal components to avoid injuries to hands, for example, wear protective gloves.

⚠ 危险电压警告 Danger Voltage Warning

电气部分要求具备相关知识和正确操作，请务必熟读此项说明和其他相关资料，检修或长时间不用时，必须将电气控制柜内的空气开关及前级电源断开，以保护人身和设备安全。

电气工作环境过于潮湿和被水喷溅时，禁止开启机器，确保安全，必要的话，艾克森公司可提供保护板作为附件在所有的板式换热器上。这些保护板可防止金属组件突然泄漏而引起的意外伤害。

The operator engaged in electrical works should have related knowledge and operate correctly. Please carefully read this description and relevant information. The air switch and preceding stage power in the electrical control cabinet should be cut off if the equipment is under overhaul or in idle for long time to protect the safety of person and equipment.

When the electrical work environment is too wet and sprayed with water, it is forbidden to start up the machine to ensure safety. If it is required to start up the machine in such environment, the guard plate provided by Accessen should be used on all plate heat exchangers as an accessory to prevent accidental damage caused by sudden leakage of metal components.

目录 / Contents

亲爱的用户

非常感谢您对艾克森的信任和支持，当您在各种不同情况下使用您的艾克森板式换热机组时，这本指导手册就是您直接的向导。艾克森公司忠告您仔细阅读这本手册，尤其应使那些每日都在进行此设备的安装、维修或操作的人员得到这本手册。当您的同事需要这本手册，而手册却被束之高阁时，这本手册对您就毫无价值了。

对于用户不按手册的指导和使用非原厂备件而造成任何设备损坏，艾克森公司概不负责。如果您的换热机组出现了本手册范围以外的特殊故障，请不要犹豫，立即与艾克森公司代表联系，不管您在世界上哪个地方，我们都会帮助您。

请用微信扫描下方的二维码，提供更多的技术、服务和备件支持。

致用户 To users

Dear users

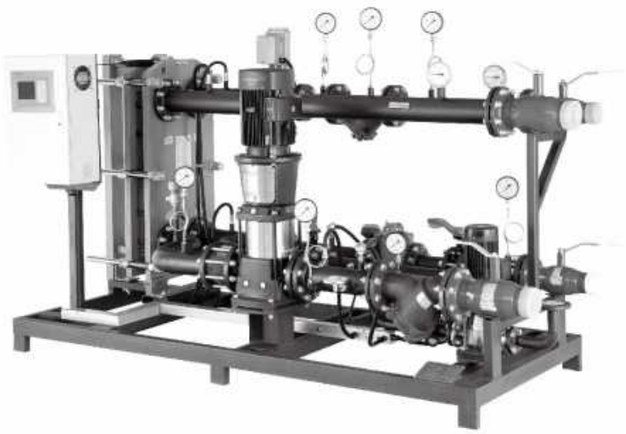
Thank you for your trust and support for Accessen, and this guidance manual will be your direct guide when you use Accessen plate heat exchangers in a variety of different situations. Accessen advises you to read this manual carefully, especially to make sure the staffs Especially, to make sure the staffs how to install, operate, or repair the equipment in daily work to obtain it. The manual will become worthless if it is shelved when needed by your workmates.

Accessen is not responsible for any damage to the equipment by the usage that don't follow manual's guidance or using the non-original spare parts. If your plate heat exchanger has a special problem other than the scope of this manual, please contact the representative of Accessen without hesitation, and We will help no matter no matter where you are in the world.

Scan the QR Code below using WeChat for more mechanical information, after sales service, and spareparts support.

铭牌与设备标志

Nameplate and device identification



Accessen

在与艾克森公司通信联系时，请写明型号系列号及生产日期，以便核准设备。

用户可根据铭牌上的制造序列号鉴别产品的生产地。艾克森产品均有唯一的序列号。

艾克森板式换热机组的所有零件都可以用一个号码进行鉴别。当与艾克森公司联系零件时，请务必提出其标志号码。

When communicating with Accessen, please specify the serial number and date of manufacture in order to approve the equipment.

The user can identify the product according to the serial number on the nameplate. All of Accessen products have a unique serial number.

All spare parts of the plate heat exchanger can be identified with a number. When contacting Accessen, be sure to specify the mark number of the spare parts .

Accessen板式换热机组使用说明

Accessen板式换热机组简介

Accessen板式换热机组具有良好的环保性能，整机运行躁声低于70分贝，结构合理、外型美观、操作简便、安全可靠。单机供热能力可以从350KW至15000KW以上；供热面积可达40万平方米以上，分成5个控制等级，用户可任意选择。

Accessen板式换热机组是集成了水处理、板式换热器、循环泵、补水泵、温度计、压力表、各种传感器、管路和阀门及工控于一体的成套区域供热控制设备，并加装了补水系统、定压系统，变频流量控制系统、热量计及网络通讯控制系统，是把大量用户现场的水泵，阀门的选择以及管道法兰焊接的工作以及电气控制的现场安装调试工作，同时结合Accessen公司领先的技术以及丰富的经验，标准化模块的设计，和Accessen公司站在行业前沿的高度选配机组的配件，如水泵、阀门及工控等工作，统筹兼顾，为用户量身定做更适合用户只需现场安装四到五根管线和一根电源线到机组的电控箱即可调试运行该机组。

Accessen板式换热机组用途

广泛适用于供暖、空调、给排水、机械、冶金、食品、化工、轻纺、造纸、医药、电子、船舶等行业中，凡及液一一液热交换、可凝汽液体热交换的工艺场合均已采用。例如：

供暖：冬季供暖系统的热力站；
热水：生活热水供应系统，工艺用水冷却系统；
轻纺、造纸业：废水废气的余热回收；
化工：化学反应中间的加热、冷却过程；
空调：大型楼宇的中央空调冷冻水中间换热装置；
机械：润滑油及液压油冷却、乳化液冷却；
食品：啤酒、饮料、酱油等液态物料的灭菌；
冶金：局炉冷却系统、连铸油冷却系统、制氧机冷却系统等。

Brief Introduction of Accessen Heat Exchanger Unit

ABJ series plate heat exchanger has good environment protection performance. The operation noise is lower than 70 dB, with good structure, beautiful appearance and reliability. The heat supplying capability of a single exchanger ranges from 350Kw to above 15000Kw. The heat supplying area can be more than 400,000 square meters and users can select randomly.

ABJ series heat exchanger unit is a set of regional heat supply control equipment which combines the water treatment, plate heat exchanger, circulating pump, make-up pump, thermometer, manometer, various kinds of sensors, pipelines, valves and control units. We added the water make-up system, constant pressure system, frequency conversion control system, calorimeter and network communication control system. The whole set of equipment will be designed according to customers' special requirements by Accessen with its advanced technology and Accessen with its advanced technology and experiences experience. All the units will be tested to be qualified before exiting the factory.

The users only need to install four to five pipes and a power cord to the electric control box to test the operation of the set.

Functions of AccessenHeat Exchanger Unit

They are widely used in the industries such as heating, air-conditioning, water supply and drainage, machinery, metallurgy, chemical engineering, light industry, textile, paper-making, medicine, electronics and vessels. They have been widely used in occasions of liquid-liquid heat exchange and condensable Steam-liquid heat exchange.

For example:

* Heating: thermal station of the winter heating system
* Hot water supply: Domestic hot water supply system and process water cooling system
* Textile and paper-making industry: Heat recovery of waste water and waste gas
* Chemical engineering: heating and cooling Processes during chemical reaction
* Air-conditioning: refrigerated water heat exchange

device of the central air-conditioning of large-scale buildings.

* Machinery: Lubricant and hydraulic oil cooling and emulsion cooling
* Food: Bacteria killing for beer, beverage, soy
* Metallurgy: Blast furnace cooling system, continuous casting cooling system and oxygen generator cooling system etc.

Accessen板式换热机组特点

传热效率高：

板片的特殊波纹结构，使流体在较低流速下即可获得较高的传热系数，通常是传统管壳式换热器的3-5倍。在完成同一换热任务时，板式换热器的换热面积仅为传统壳式换热器的1/3-1/2。

占地面积小：

板式换热器结构紧凑，单位体积内的换热面积为传统管壳式换热器的2-5倍，因此实现同样的换热任务时，板式换热器的占地面积仅为传统管壳式换热器的1/10-1/5。

污垢系数低：

在板式换热器内流动的流体，即使在较低流速下也可形成剧烈的湍动，这种自动冲刷作用使得杂质不易沉积；光滑的不锈钢板片表面使得杂质不易着附，所以板式换热器污垢系数比之其它类型的换热器污垢系数小得多。

多种介质换热：

如果在板式换热器设备中间隔板，则一台设备可进行三种或三种以上介质的换热。其他类型的换热器是无法实现的。

清洗方便：

把板式换热器的夹紧螺栓松开卸掉后，即可松开板束、卸下板片进行清洗。

容易改变换热面积流程组合：

只要松开夹紧螺栓，增加（或减小）板片，即可达到增加（或减小）换热面积的效果；只要安装几张必要的板片，即可实现工艺需要的流程组合或适应新的换热工况。

Brief Introduction of (space) Exchanger Unit

High Heat Transfer Efficiency:

The special corrugated structure allows the liquid to attain relatively high heat conducting coefficient in low speed, which is generally 3 to 5 times that of traditional heat exchanger to complete the same heat transfer task. The heat exchange area of plate, the heat exchange area of plate heat transfer is only 1/2 to 1/3 delete that of traditional heat exchangers.

Small Required Area:

The plate heat exchanger is compact and the heat exchange area within unit volume is 2 to 5 times that of the traditional heat exchanger. Therefore, to complete the same heat transfer task, the required area of plate heat transfer is only 1/5 to 1/10 of that of traditional heat exchangers.

Low Fouling Factor:

Liquid flowing in the plate heat exchanger can form intense turbulent motion even at slow speed. Such kind of automatic flushing makes it difficult for the impurities to deposit. The smooth stainless plate makes it difficult for the impurities to adhere to. Therefore, the fouling factor of the required area of plate heat exchanger is only 1/5 to 1/10 of traditional heat exchangers.

Multi Media:

By installing a middle separation plate in the plate heat exchanger, the equipment can conduct heat exchange of three or more than three media, which is impossible for other types of heat exchangers.

Easy Cleaning:

By dismantling the clamping bolt of the plate heat exchange, the plate cluster can be loosened and the plates can be taken off for cleaning.

Changeable Heat Transfer Area:

By loosening the clamping bolt and increasing (or decreasing) the plate, the heat transfer area can be increased (decreased). Only by installing several necessary plates, the required flow combination can be realized or the new heat transfer condition can be suited.

Accessen板式换热机组型号

Accessen公司ABJ/GU 系列换热机组用“板式换热器”和“机组”的头两个字“板机”的汉语拼音大写字头ABJ/GU 表示。

Accessen板式换热机组产品型号组成及含义：

型号中第1、2、3位表示板式换热机组；

第4位表示一次侧热媒的介质：热水—“W”；

蒸汽—“S”；

第5位表示二次侧工况：生活热水系统—“T”；空调系统及地板辐射采暖系统—“A”；一般采暖系统—“H”；制冷系统—“G”；

第6位表示产品序列号；

第7位表示热负荷；

第8位表示控制等级，按表1分为5级；

第9位表示整机设计压力；

ABJ/GU series heat exchanger units produced by Accessen are indicated with ABJ/GU (The first capitalized Pinyin letter of “plate heat exchanger” and “unit”).

Definition of product models of the Accessen heat exchanger unit:

The first, second and third numbers in the model mean plate type heat exchanger unit;

The fourth number means the primary heat agent: hot water—"W"; steam—"S";

The fifth number means secondary side working condition: domestic hot water system—"T"; air-conditioner—"A"; general heating system—"H"; floor heating system—"F"; refrigeration system—"G";

The sixth number means the series number of product

The seventh number means heat load;

The eighth number means control level, which classified to five levels according to table 1:

The ninth number means design pressure of complete unit;

表1：Accessen板式换热机组的控制等级

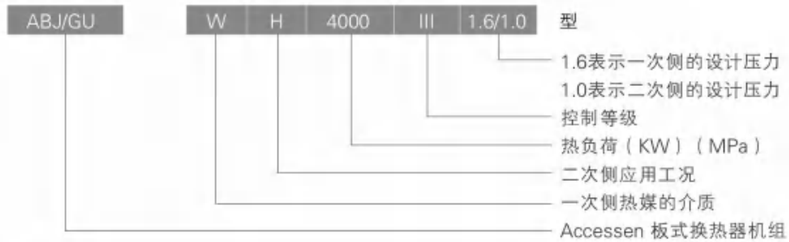
级别	控 制 功 能
0	自动补水
Ⅰ	0＋温度控制
Ⅱ	0＋Ⅰ＋补水泵变频自动定压补水控制
Ⅲ	0＋Ⅰ＋Ⅱ＋循环泵变频系统＋温度补偿
Ⅳ	0＋Ⅰ＋Ⅱ＋Ⅲ＋热计量系统＋通讯系统

Table 1:the control levels for ABJ series heat exchanger unit

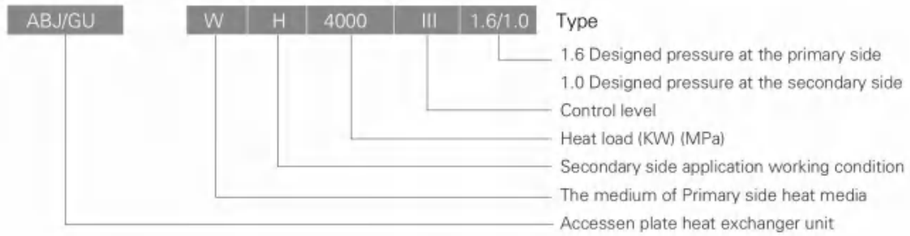
level	control function
0	automatic water supply
Ⅰ	0＋temperature control
Ⅱ	0＋Ⅰ＋Water supply pump frequency conversion and automatic constant pressure set.supply pump
Ⅲ	0＋Ⅰ＋Ⅱ＋circulation pump frequency conversion system＋temperature compensation
Ⅳ	0＋Ⅰ＋Ⅱ＋Ⅲ＋heat measure system＋communication system

The models of Accessen unit

示例：



Demonstration:



型号编制示例：

（1）ABJ/GU−SA070/4200Ⅲ/1.6型

表示：热负荷4200KW，适用于空调系统，一次侧热媒介质为蒸汽，产品序列号为070,整机设计压力1.6MPa，控制等级为Ⅲ型即具有温度控制、温度补偿控制、循环泵变频系统、补水泵变频自动定压补水控制系统的APJ系列换热机组。

（2）ABJ/GU/2−WH050/3000I/1.0+1WT1500I/1.0

表示采暖与生活热水二合一机组,热负荷3000KW为热水采暖系统,热负荷1500KW为生活热水系统,产品序号050,控制等级为I级,采暖与生活热水均具有自动补水、温度控制的二合一机组,整机设计压力1.0Mpa。

Demonstration of model

(1) ABJ/GU-SA070/4200III/type 1.6

expression: heat load 4200KW, applicable for air-conditioner; the primary heat medium is steam; the series number of the product is 070; the design pressure of complete unit is 1.6Mpa; control level is level III viz ABJ series heat exchanger unit with systems of temperature control, temperature compensation control, circulation pump frequency conversion and water supply pump frequency conversion.

(2) ABJ/GU/2-WH050/30001/1.0+1WT15001/1.0

expression: the combining unit of heating and domestic hot water; hot water heating system with heat load 3000KW, domestic hot water system with heat load 1500KW; the series number of the product is 050; control level is level I, the systems of heating and domestic hot water have both the functions of automatic water supply and temperature control with the design pressure of complete unit 1.0Mpa.

Accessen板式换热机组设计理念：

Accessen板式换热机组的设计是在满足采暖用户最舒适度的热负荷的情况下，以最大限度地节省能源为最高设计理念；在区域供热管网系统中同，有质调节和量调节两种节能控制方式，A系列换热机组设计为一次网量调节控制，二次网设计为质调和量调两种控制方式，依此分为五个等级来实现最大化节能设计：

0型：

机组具有自动补水功能＋手动调节供水温度＋手动调节二次侧流量。

I型：

温度控制功能及温度补偿功能：

具体配置：

现场就地控制器、室外温度传感器

一次侧：

电动调节阀(可带弹簧返回断电保护功能)

二次侧：

供水温度传感器

显示模式：

现场就地控制器显示的参数：二次侧供水温度及室外温度

控制模式：

现场控制器根据二次侧供水温度传感器及室外温度传感器共同控制一次侧电动调节阀，自动调节一次网流量，实现一次网量调节，从而控制二次网的供水温度按设定的模式运行，实现二次网的质调节；

功能模式：

具有温度补偿功能，最大限度节省能源；具有直接手动设定二级网的供水温度功能；具有直接手动设定值班采暖的运行模式；具自动切换备用泵的功能；具有自动泄压功能；

Accessen heat exchanger unit design principle

The design of Accessen heat exchanger unit meets the heat load that provides provides the most efficient for heating user and extremely saves energy; there are two methods of energy conservation control-quality adjustment and quantity adjustment in the system of regional heating pipeline network. The design of ABJ series heat exchanger unit is the quantity adjustment control in primary network and quality adjustment control and quantity adjustment control in secondary network, upon which is divided into five levels to achieve a most energy conservation:

Type 0:

the unit has the function of automatic water supply, manual adjustment for water supply temperature, and manual adjustment for secondary network side flow.

Type I: temperature control function and temperature compensation function:

Facility: on spot controller at site, outdoor temperature sensor

primary Side: electrical regulation valve (the protection function of return electricity trip with spring)

secondary Side: water temperature sensor

display Mode:

parameter indicated on spot controller secondary side supply water temperature and outdoor temperature.

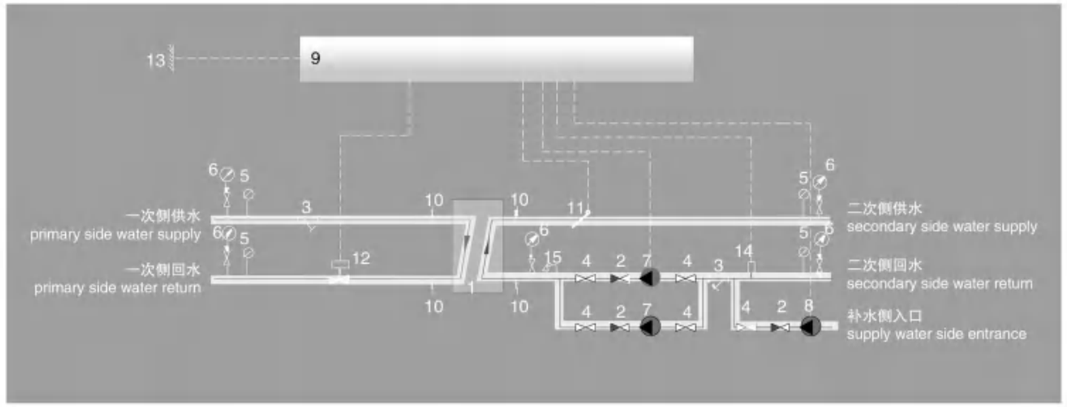
control Mode:

the on spot controller at site controls the electrical regulation valve on primary side via secondary side supply water temperature sensor and outdoor temperature sensor, to adjust flow of primary network automatically to achieve a quantity adjustment of primary network, so as to control the supply water temperature of secondary network operating as the set mode and achieve a quality adjustment of secondary network;

function Mode:

the temperature compensation function to achieve utmost energy saving; the function of setting supply water temperature of secondary network by manual operation; the function of setting operation mode of on duty heating by manual operation; the function of automatic switch of stand-by pump; the function of automatic pressure release;

艾克森控制等级 I 级　Accessen Control Level Type I



1：板式换热器
2：止回阀
3：过滤器
4：蝶阀
5：温度计
6：压力表
7：循环水泵
8：补水水泵
9：控制柜
10：排放阀
11：温度传感器
12：电动调节阀
13：室外温度传感器
14：压力传感器
15：安全阀

1：plate heat exchanger
2：check valve
3：filter
4：butterfly valve
5：thermometer
6：pressure meter
7：circulation water pump
8：make up water pump
9：control cabinet
10：blow-down valve
11：temperature sensor
12：electrical regulation valve
13：outdoor temperature sensor
14：pressure sensor
15：safety valve

Accessen板式换热机组设计理念：

Ⅱ型：

温度控制功能＋温度补偿功能＋补水泵变频自动定压补水控制；

具体配置：

现场就地控制器、室外温度传感器、补水泵变频器、(软化水补水箱水位控制)

一次侧：

电动调节阀(可带弹簧返回断电保护功能)

二次侧：

供水温度传感器，回水压力变送器

显示模式：

现场就地控制器显示的参数：二次侧供水温度及室外温度、二次侧回水压力、补水泵变频器频率

控制模式：

温度控制

现场控制器根据二次侧供水温度传感器及室外温度传感器共同控制一次侧电动调节阀，自动调节一次网流量，实现一次网量调节，从而控制二次网的供水温度按设定的模式运行，实现二次网的质调节；

压力控制

根据二次侧回水压力，自动控制补水泵变频运行，恒定二次网系统压力；(自动控制补水水箱水位)；当系统超压时自动排水泄压；

功能模式：

具有温度补偿功能，最大限度节省能源；具有直接手动设定二级网的供水温度功能；具有直接手动设定值班采暖的运行模式；具有自动恒定二次网系统压力功能；具有自动泄压功能；具自动切换备用泵的功能；具有自动控制水箱水位功能；

Type II: temperature control function + temperature compensation function + frequency conversion

Facility: on spot controller,outdoor temperature sensor, water supply pump transducer, (level control of soft water tank)

Primary Side: electrical regulation valve (the protection function of return electricity trip with spring)

Secondary Side: supply water temperature sensor, return water pressure transducer.

Display Mode: parameter indicated by on spot controller at site: secondary side supply water temperature and outdoor temperature, secondary side return water pressure, frequency of water supply pump transducer

Control Mode:

temperature control

the on spot controller at site controls the electrical regulation valve on primary side via secondary side supply water

temperature sensor and outdoor temperature sensor, to adjust flow of primary network automatically to achieve a quantity adjustment of primary network, so as to control the supply water temperature of secondary network operating as the set mode and achieve a quality adjustment of secondary network;

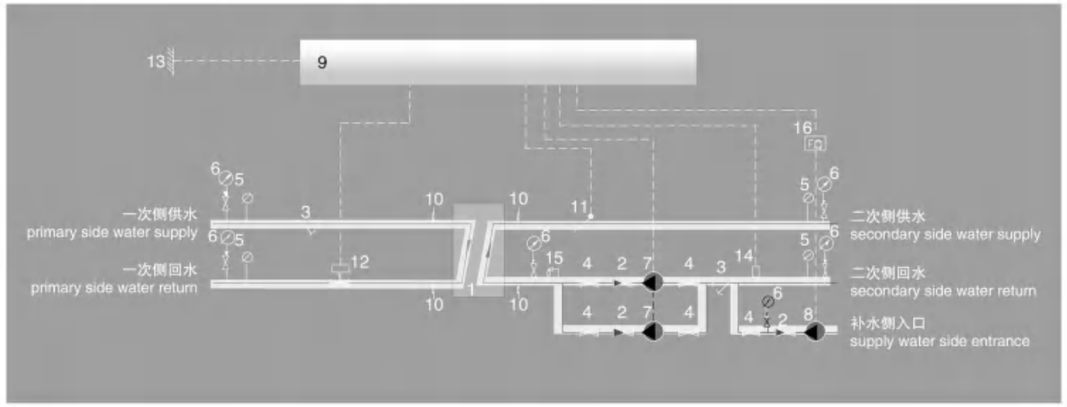
Pressure Control

upon return water pressure of secondary side, automatic control water supply pump transducer operates to stabilize the pressure of secondary network system; (automatically controls water supply case level); and automatically starts to drain water for pressure release while system has over-pressure;

Function Mode: the temperature compensation function to utmost save energy; the function of setting supply water temperature of secondary network by manual operation;the function of setting operation mode of on duty heating by manual operation;the function of automatic stabilizing pressure of secondary network system; the function of automatic pressure release; the function of automatic switch of stand-by pump; the function of automatic control of water case level;

Accessen heat exchanger unit design principle

艾克森控制等级 II 级 Accessen control level type II



1：板式换热器	1：plate heat exchanger
2：止回阀	2：check valve
3：过滤器	3：filter
4：蝶阀	4：butterfly valve
5：温度计	5：thermometer
6：压力表	6：pressure meter
7：循环水泵	7：circulation water pump
8：补水水泵	8：make up water pump
9：控制柜	9：control cabinet
10：排放阀	10：blow-down valve
11：温度传感器	11：temperature sensor
12：电动调节阀	12：electrical regulation valve
13：室外温度传感器	13：outdoor temperature sensor
14：压力传感器	14：pressure sensor
15：安全阀	15：safety valve
16：变频器	16：transducer

Accessen板式换热机组设计理念：

Ⅲ型：

温度控制功能＋温度补偿功能＋补水泵变频自动定压补水控制＋循环泵变频系统；

具体配置：

现场就地控制器、室外温度传感器、循环泵变频器、补水泵变频器、软化水补水箱水位控制

一次侧：电动调节阀(可带弹簧返回断电保护功能)、供回水温度传感器、供回水压力变送器

二次侧：

供水温度传感器、供回水压力变送器

显示模式：

现场就地控制器显示的参数：二次侧供水温度及室外温度，二次侧供、回水压力，一次水箱水位，补水泵变频频率，循环泵变频频率。

控制模式：

温度控制

现场控制器根据二次侧供水温度传感器及室外温度传感器共同控制一次侧电动调节阀，自动调节一次网流量，实现一次网量调节，从而控制二次网的供水温度按设定的模式运行，实现二次网的质调节；

压力控制

根据二次侧回水压力，自动控制补水泵变频运行，恒定二次网系统压力；自动控制补水水箱水位；

根据二次侧供回水压差，自动控制循环泵变频器自动运行，恒定二次网压差，

阀门控制

能够手动调节电调阀、水泵及变频器的状态

Type III: temperature control function + temperature compensation function + frequency conversion automatic set pressure water supply control of water supply pump + circulation pump frequency conversion system:

Facility: on spot controller, outdoor temperature sensor, circulation pump transducer, water supply pump transducer, level control of soft water tank

Primary Side: electrical regulation valve (the protection function of return electricity trip with spring), supply & return water temperature sensor, supply & return water pressure transducer.

Secondary Side: supply water temperature sensor, supply & return water pressure transducer.

Display Mode: parameter indicated on spot controller at site: secondary side supply water temperature and outdoor temperature, secondary side supply & return water pressure, water tank level of primary, transducer frequency of supply water pump and transducer frequency of circulation pump.

Control Mode:

Temperature Control

the on spot controller controls the electrical

regulation valve on primary side via secondary side supply water temperature sensor and outdoor temperature sensor, to adjust flow of primary network automatically to achieve a quantity adjustment of primary network, so as to control the supply water temperature of secondary network operating as the set mode and achieve a quality adjustment of secondary network;

Pressure Control

upon water pressure of secondary side, automatic control water supply pump transducer operates to stabilize the pressure of secondary network system; automatically controls water tank level;

as per the pressure difference of supply & return water on secondary side, the automatic control circulation pump transducer operates automatically to stabilize the pressure difference of secondary network.

Valve control

Adjust the states of electrical regulation valve, water pump and transducer by manual operation.

Accessen heat exchanger unit design principle

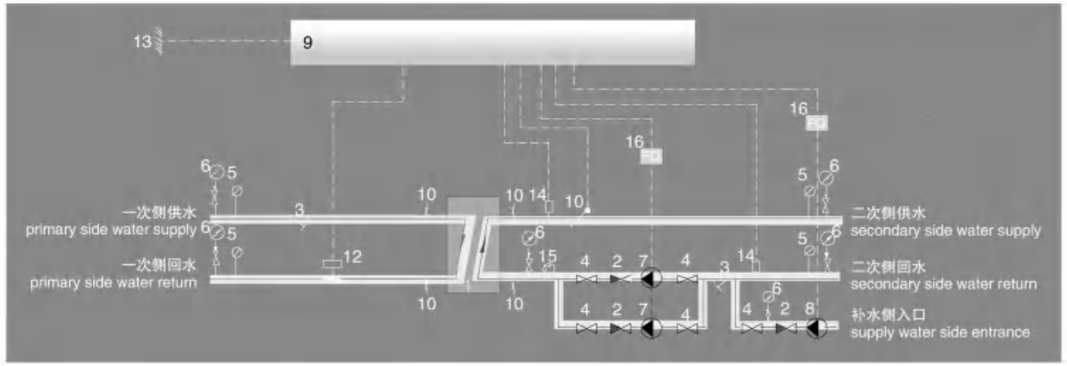
功能模式：

具有温度补偿功能，最大限度节省能源；具有直接手动设定二级网的供水温度功能；具有直接手动设定值班采暖的运行模式；具有自动恒定二次网系统压力功能；具自动切换备用泵的功能；具有自动泄压功能；具有自动控制水箱水位功能；具有循环泵变流量控制，节省电能；具有直接设定二级网循环水泵的运行频率功能；

Function Mode:

the temperature compensation function to achieve utmost energy save; the function of setting supply water temperature of secondary network by manual operation; the function of setting operation mode of on duty heating by manual operation; the function of automatic stabilizing pressure of secondary network system; the function of automatic switch of stand-by pump; the function of automatic pressure release; the function of automatic control of water level; the function of flow control of circulation pump to save energy; the function of setting operation frequency of circulation water pump of secondary network.

艾克森控制等级 III 级 Accessen control level type III



1：板式换热器	1：plate heat exchanger	9：控制柜	9：control cabinet
2：止回阀	2：check valve	10：排放阀	10：blow-down valve
3：过滤器	3：filter	11：温度传感器	11：temperature sensor
4：蝶阀	4：butterfly valve	12：电动调节阀	12：electrical regulation valve
5：温度计	5：thermometer	13：室外温度传感器	13：outdoor temperature sensor
6：压力表	6：pressure meter	14：压力传感器	14：pressure sensor
7：循环水泵	7：circulation water pump	15：安全阀	15：safety valve
8：补水水泵	8：make up water pump	16：变频器	16：transducer

Accessen板式换热机组设计理念：

IV型：

IV型设计配置是在Ⅲ型的基础上再加上热计量和远程通讯系统控制功能，所有的配置在Ⅲ型配置的基础上增加流量计远程控制系统以及安全泄压电磁阀，（详见控制系统图）机组控制部分可在主动和被动方式下与监控中心通过通讯线路进行数据通信，通讯协议应为标准的、公开的。

Accessen板式换热机组IV型设计真正实现了供热站内无人值守的功能。

IV型：

温度控制功能＋温度补偿功能＋补水泵变频自动定压补水控制＋循环泵变频系统＋热计量系统＋远程通讯控制系统：

具体配置：

现场就地控制器、室外温度传感器、循环泵变频器、补水泵变频器、软化水补水箱水位控制、远程通讯控制

一次侧：

电动调节阀(可带弹簧返回断电保护功能)、供回水温度传感器、供回水压力变送器、供水流量计

二次侧：

供回水温度传感器、供回水压力变送器、回水流量计

补水管：

补水流量计、泄压电磁阀

显示模式：

现场就地控制器显示的参数：一次侧供、回水温度，二次侧供、回水温度及室外温度，一次侧供、回水压力，二次侧供、回水压力，一次侧热量，二次侧热量，补水水量，水箱水位，电调阀状态，电磁阀状态，水泵状态，补水泵变频频率，循环泵变频频率。

控制模式：

温度控制

现场控制器根据二次侧供水温度传感器及室外温度传感器共同控制一次侧电动调节阀，自动调节一次网流量，实现一次网量调节，从而控制二次网的供水温度按设定的模式运行，实现二次网的质调节；

压力控制

根据二次侧回水压力，自动控制补水泵变频运行，恒定二次网系统压力；自动控制补水水箱水位；当系统超压时电磁阀开启自动排水泄压；

根据二次侧供回水压差，自动控制循环泵变频器自动运行，恒定二次网压差，

Type IV: the design of type IV is to put heat measure and long-distance communication control function on the basis of type III. All assemblies are same as type III except the adding flowmeter long-distance control system and safety pressure release electromagnetic valve, (for detail see control system chart). The unit control system is possible to make data communication with monitoring center via communication circuitry in both methods of initiative and passivity. The communication agreement should be standard and open.

The design of A series heat exchanger unit type IV achieves the function that no one needs to be on duty in heating station.

Type IV: temperature control function + temperature compensation function + frequency conversion automatic set pressure water supply control of water supply pump + circulation pump frequency conversion system + heat measure system + long-distance communication control system:

Facility: on spot controller, outdoor temperature sensor, circulation pump transducer, water supply pump transducer, level control of soft water tank, long-distance communication control

Primary Side: electrical regulation valve (the protection function of return electricity trip with spring), supply & return water temperature sensor, supply & return water pressure transducer and supply water flowmeter.

Secondary Side: supply and return water temperature sensor, supply & return water pressure transducer, return water flowmeter.

water supply pipe: water supply flowmeter, pressure releave electromagnetic valve

Display Mode: parameter indicated on spot controller: primary side supply & return water temperature, secondary side supply & return water temperature and outdoor temperature, primary side supply & return water pressure, secondary side supply & return water pressure, primary side heat, secondary side heat, supply water flow, case level, electrical regulation valve state, electromagnetic valve state, water pump state, water supply pump transducer frequency and circulation pump transducer frequency.

Control Mode:

Temperature Control

the on spot controller controls the electrical

regulation valve on primary side via secondary side supply water temperature sensor and outdoor temperature sensor, to adjust flow of primary network automatically to achieve a quantity adjustment of primary network, so as to control the supply water temperature of secondary network operating as the set mode and achieve a quality adjustment of secondary network;

Pressure Control

upon water pressure of secondary side, automatic control water supply pump transducer operates to stabilize the pressure of secondary network system; automatically controls water tank level; and the electromagnetic valve automatically starts to drain water for pressure relief while system has over-pressure;

as per the pressure difference of supply & return water on secondary side, the automatic control circulation pump transducer operates automatically to stabilize the pressure difference of secondary network.

Accessen heat exchanger unit design principle

阀门控制

能够手动调节电调阀、电磁阀、水泵及变频器的状态

功能模式：

具有温度补偿功能，最大限度节省能源；具有直接手动设定二级网的供水温度功能；具有直接手动设定值班采暖的运行模式；具有一次网的回水温度最高限制功能；具有自动恒定二次网系统压力功能；具有自动泄压功能；具有自动切换备用泵的功能；具有自动控制水箱水位功能；具有累计补水水量功能；具有累计一次网热量、二次网热量功能；具有循环泵变流量控制，节省电能；具有直接设定二级网循环水泵的运行频率功能；具有停电保护来电自启动能。

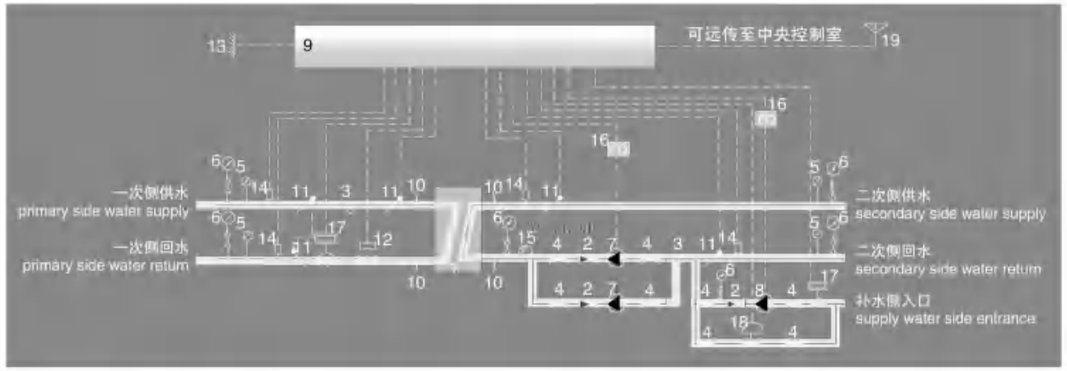
Valve Control

Adjust the state of electrical regulation valve, electromagnetic valve, water pump and transducer by manual operation.

Function Mode:

the temperature compensation function to achieve utmost energy save; the function of setting supply water temperature of secondary network by manual operation; the function of setting operation mode of on duty heating by manual operation; the function of limit on maximum temperature of return water of primary network; the function of automatic stabilizing pressure of secondary network system; the function of automatic pressure release; the function of automatic switch of stand-by pump; the function of automatic control of water level; the function of adding up the volume of water supply; the function of adding up heat of primary network and secondary network; the function of flow control of circulation pump to save energy; the function of setting operation frequency of circulation water pump of secondary network.

艾克森控制等级 IV 级 Accessen control level type IV



1：板式换热器	1：plate heat exchanger	11：温度传感器	11：temperature sensor
2：止回阀	2：check valve	12：电动调节阀	12：electrical regulation valve
3：过滤器	3：filter	13：室外温度传感器	13：outdoor temperature sensor
4：蝶阀	4：butterfly valve	14：压力传感器	14：pressure sensor
5：温度计	5：thermometer	15：安全阀	15：safety valve
6：压力表	6：pressure meter	16：变频器	16：transducer
7：循环水泵	7：circulation water pump	17：流量计	17：flowmeter
8：补水水泵	8：make up water pump	18：电磁阀	18：electromagnetic valve
9：控制柜	9：control cabinet	19：无线调制解调器及天线	19：wireless modem and antenna
10：排放阀	10：blow-down valve		

Accessen板式换热机组选型参数表：

S汽－水换热机组（一次侧热源为≤0.4Mpa或143℃饱和蒸汽）

S steam-water heat exchanger unit (primary side heat source is ≤0.4 Mpa or 143℃ saturated steam)

用于汽－水交换的采暖SH型换热机组（二次侧95/70℃或85/60℃）

Heating type SH heat exchange unit used for steam-water exchange (secondary side 95/70℃ or 85/60℃)

机组型号 Unit Model	换热量 Heat Exchange Volume kW	最大产热量 Maximum Heating Volume	二次侧最大流量 maximum flow of Secondary Side m^3/h	机组外形尺寸 Unit Dimension mm LxWxH	机组重量 Unit Weight Kg
SH005	300	26	11	4300*2100*1800	1700
SH010	600	52	21	4500*2300*2000	1700
SH015	900	78	31	4700*2300*2000	2300
SH020	1200	104	42	4700*2300*2200	3000
SH025	1500	129	52	4700*2300*2200	3000
SH030	1800	155	62	5100*2400*2200	3400
SH035	2100	181	73	5100*2400*2200	3400
SH040	2400	207	83	5100*2400*2200	3400
SH045	2700	233	93	5700*2500*2300	3800
SH050	3000	259	104	5700*2500*2300	3800
SH055	3300	285	114	5700*2500*2300	3800
SH060	3600	310	124	6800*2600*2400	4500
SH065	3900	336	135	6800*2600*2400	4500
SH070	4200	362	145	6800*2600*2400	4500
SH075	4500	388	155	6800*2600*2400	4500
SH080	4800	414	166	6800*2700*2400	4800
SH085	5100	440	176	6800*2700*2400	4800
SH090	5400	466	186	6800*2700*2400	4800
SH095	5700	492	197	6900*2700*2700	6100
SH100	6000	517	207	6900*2700*2700	6100
SH110	6600	569	228	6900*2700*2700	6100
SH120	7200	621	248	8500*2900*2900	7000
SH130	7800	672	269	8500*2900*2900	7200
SH140	8400	724	290	8500*2900*2900	7200
SH150	9000	776	310	8500*2900*2900	7600
SH200	12000	1035	414	8900*3100*2900	9000
SH250	15000	1294	517	8900*3200*2900	11000

Parameter table for model selection of Accessen heat exchanger unit

S汽－水换热机组（一次侧热源为≤0.4Mpa或143℃饱和蒸汽）

S steam-water heat exchanger unit (primary side heat source is ≤0.4 Mpa or 143℃ saturated steam)

用于汽－水交换的空调（地板采暖）SA型换热机组（二次侧60/50℃或50/40℃）

The type SA (floor heating) air-conditioner heat exchange unit used for steam-water exchange (secondary side 60/50℃ or 50/40℃)

机组型号 Unit Model	换热量 Heat Exchange Volume kW	最大产热量 Maximum Heating Volume	二次侧最大流量 maximum flow of Secondary Side m^3/h	机组外形尺寸 Unit Dimension mm LxWxH	机组重量 Unit Weight Kg
SA005	300	26	26	4200*2000*2000	2300
SA010	600	52	52	4200*2000*2200	3000
SA015	900	78	78	4200*2000*2200	3000
SA020	1200	104	104	4600*2100*2200	3400
SA025	1500	129	129	4600*2100*2200	3400
SA030	1800	155	155	4600*2100*2200	3400
SA035	2100	181	181	5200*2200*2300	3800
SA040	2400	207	207	5200*2200*2300	3800
SA045	2700	233	233	5200*2200*2300	3800
SA050	3000	259	259	6300*2300*2400	4500
SA055	3300	285	285	6300*2300*2400	4500
SA060	3600	310	310	6300*2300*2400	4500
SA065	3900	336	336	6300*2300*2400	4500
SA070	4200	362	362	6300*2400*2400	4800
SA075	4500	388	388	6300*2400*2400	4800
SA080	4800	414	414	6300*2400*2400	4800
SA085	5100	440	440	6400*2400*2700	6100
SA090	5400	466	466	6400*2400*2700	6100
SA095	5700	492	492	6400*2400*2700	6100
SA100	6000	517	517	8000*2600*2900	7000
SA110	6600	569	569	8000*2600*2900	7200
SA120	7200	621	621	8000*2600*2900	7200
SA130	7800	672	672	8000*2600*2900	7600
SA140	8400	724	724	8500*2800*2900	9000
SA150	9000	776	776	8500*3200*2900	11000
SA200	12000	1035	1035	10000*3500*3200	13000
SA250	15000	1294	1294	10000*3500*3200	13000

Accessen板式换热机组选型参数表:

S汽－水换热机组（一次侧热源为≤0.4Mpa或143℃饱和蒸汽）

S steam–water heat exchanger unit (primary side heat source is ≤0.4 Mpa or 143℃ saturated steam)

用于汽－水交换的（生活热水）ST型换热机组（二次侧5/55℃或≤60℃）

ST Plate Heat Exchanger Unit for Steam–Water heat exchanging (secondary side 5/55℃ or ≤60℃)

机组型号 Unit Model	换热量 Heat Exchange Volume kW	最大产热量 Maximum Heating Volume	二次侧最大流量 maximum flow of Secondary Side m^3/h	机组外形尺寸 Unit Dimension mm LxWxH	机组重量 Unit Weight Kg
ST005	300	26	5.2	2500*800*1200	1300
ST010	600	52	10	2500*800*1200	1900
ST015	900	76	16	2500*1000*1400	1900
ST020	1200	104	21	2500*1000*1400	2000
ST025	1500	130	26	2500*1000*1400	2100
ST030	1800	155	31	2900*1000*1400	2100
ST035	2100	181	36	2900*1200*1400	2300
ST040	2400	207	42	2900*1200*1600	2300
ST045	2700	233	47	2900*1200*1600	2400
ST050	3000	259	52	2900*1200*1600	2400
ST055	3300	285	57	3300*1600*1600	3200
ST060	3600	310	62	3300*1600*1600	3200
ST065	3900	336	67	3300*1600*1600	3200
ST070	4200	362	73	3300*1600*1600	3200
ST075	4500	388	78	3300*1600*1600	3600
ST080	4800	414	83	3300*1600*1600	3600
ST085	5100	440	88	3300*1600*1600	3600
ST090	5400	466	93	3300*1800*1600	3600
ST095	5700	492	98	3300*1800*1600	3600
ST100	6000	517	104	3300*1800*1600	3600
ST110	6600	569	114	3300*1800*1600	3800
ST120	7200	621	124	3300*1800*1600	3800
ST130	7800	673	135	4000*2000*1800	4300
ST140	8400	724	145	4000*2000*1800	4500
ST150	9000	776	155	4400*2000*1800	4500
ST200	12000	1035	207	4400*2000*1800	4800
ST250	15000	1294	259	6100*2300*2200	5000

Parameter table for model selection of Accessen heat exchanger unit

W水－水换热机组（一次侧热源为110/80℃或95/70℃高温水）

W water–water heat exchanger unit (primary side heat source is high temperature water of 110/80℃ or 95/70℃)

用于水－水交换的采暖WH型换热机组（二次侧95/70℃或85/60℃）

The heating type WH heat exchanger unit used for water–water heat exchange (secondary side 95/70℃ or 85/60℃)

机组型号 Unit Model	换热量 Heat Exchange Volume kW	最大产热量 Maximum Heating Volume	二次侧最大流量 maximum flow of Secondary Side m^3/h	机组外形尺寸 Unit Dimension mm LxWxH	机组重量 Unit Weight Kg
WH005	300	26	10	3800*1800*1800	1700
WH010	600	52	21	4000*2000*2000	1700
WH015	900	78	31	4200*2000*2000	2300
WH020	1200	104	41	4200*2000*2200	3000
WH025	1500	129	52	4200*2000*2200	3000
WH030	1800	155	62	4600*2100*2200	3400
WH035	2100	181	73	4600*2100*2200	3400
WH040	2400	207	83	4600*2100*2200	3400
WH045	2700	233	93	5200*2200*2300	3800
WH050	3000	259	104	5200*2200*2300	3800
WH055	3300	285	114	5200*2200*2300	3800
WH060	3600	310	124	6300*2300*2400	4500
WH065	3900	336	135	6300*2300*2400	4500
WH070	4200	362	145	6300*2300*2400	4500
WH075	4500	388	155	6300*2300*2400	4500
WH080	4800	414	166	6300*2400*2400	4800
WH085	5100	440	176	6300*2400*2400	4800
WH090	5400	466	186	6300*2400*2400	4800
WH095	5700	491	197	6400*2400*2700	6100
WH100	6000	517	207	6400*2400*2700	6100
WH110	6600	569	228	6400*2400*2700	6100
WH120	7200	621	248	8000*2600*2900	7000
WH130	7800	672	269	8000*2600*2900	7200
WH140	8400	724	290	8000*2600*2900	7200
WH150	9000	776	310	8000*2600*2900	7600

Accessen板式换热机组选型参数表:

W水－水换热机组（一次侧热源为110/80℃或95/70℃高温水）

W water–water heat exchanger unit (primary side heat source is high temperature water of 110/80℃ or 95/70℃)

用于水－水交换的空调(地板采暖)WA型换热机组（二次侧60/50℃或50/40℃热水）

The type WA (floor heating) air–conditioner heat exchanger unit used for water–water heat exchange (secondary side 60/50℃ or 50/40℃)

机组型号 Unit Model	换热量 Heat Exchange Volume kW	最大产热量 Maximum Heating Volume	二次侧最大流量 maximum flow of Secondary Side m^3/h	机组外形尺寸 Unit Dimension mm LxWxH	机组重量 Unit Weight Kg
WA005	300	26	26	4200*2000*2000	2300
WA010	600	52	52	4200*2000*2200	3000
WA015	900	78	78	4200*2000*2200	3000
WA020	1200	104	104	4600*2100*2200	3400
WA025	1500	129	129	4600*2100*2200	3400
WA030	1800	155	155	4600*2100*2200	3400
WA035	2100	181	181	5200*2200*2300	3800
WA040	2400	207	207	5200*2200*2300	3800
WA045	2700	233	233	5200*2200*2300	3800
WA050	3000	259	259	6300*2300*2400	4500
WA055	3300	285	285	6300*2300*2400	4500
WA060	3600	310	310	6300*2300*2400	4500
WA065	3900	336	336	6300*2300*2400	4500
WA070	4200	362	362	6300*2400*2400	4800
WA075	4500	388	388	6300*2400*2400	4800
WA080	4800	414	414	6300*2400*2400	4800
WA085	5100	440	440	6400*2400*2700	6100
WA090	5400	466	466	6400*2400*2700	6100
WA095	5700	492	492	6400*2400*2700	6100
WA100	6000	517	517	8000*2600*2900	7000
WA110	6600	569	569	8000*2600*2900	7200
WA120	7200	621	621	8000*2600*2900	7200
WA130	7800	672	672	8000*2600*2900	7600
WA140	8400	724	724	8500*2800*2900	9000
WA150	9000	776	776	8500*3200*2900	11000
WA200	12000	1035	1035	10000*3500*3200	13000
WA250	15000	1294	1294	10000*3500*3200	13000

Parameter table for model selection of Accessen heat exchanger unit

W水－水换热机组（一次侧热源为110/80℃或95/70℃高温水）

W water–water heat exchanger unit (primary side heat source is high temperature water of 110/80℃ or 95/70℃)

用于水－水交换的生活热水WT型换热机组（二次侧5/55℃或≤60℃）

The domestic hot water type WT heat exchanger unit used for water–water heat exchange (secondary side 5/55℃ or ≤60℃)

机组型号 Unit Model	换热量 Heat Exchange Volume kW	最大产热量 Maximum Heating Volume	二次侧最大流量 maximum flow of Secondary Side m^3/h	机组外形尺寸 Unit Dimension mm LxWxH	机组重量 Unit Weight Kg
WT005	300	26	5.2	2000*800*1200	1300
WT010	600	52	10	2000*800*1200	1900
WT015	900	76	16	2000*1000*1400	1900
WT020	1200	104	21	2000*1000*1400	2000
WT025	1500	130	26	2000*1000*1400	2100
WT030	1800	155	31	2400*1000*1400	2100
WT035	2100	181	36	2400*1200*1400	2300
WT040	2400	207	42	2400*1200*1600	2300
WT045	2700	233	47	2400*1200*1600	2400
WT050	3000	259	52	2400*1200*1600	2400
WT055	3300	285	57	2800*1600*1600	3200
WT060	3600	310	62	2800*1600*1600	3200
WT065	3900	336	67	2800*1600*1600	3200
WT070	4200	362	73	2800*1600*1600	3200
WT075	4500	388	78	2800*1600*1600	3600
WT080	4800	414	83	2800*1600*1600	3600
WT085	5100	440	88	2800*1600*1600	3600
WT090	5400	466	93	2800*1800*1600	3600
WT095	5700	492	98	2800*1800*1600	3600
WT100	6000	517	104	2800*1800*1600	3600
WT110	6600	569	114	2800*1800*1600	3800
WT120	7200	621	124	2800*1800*1600	3800
WT130	7800	673	135	3500*2000*1800	4300
WT140	8400	724	145	3500*2000*1800	4500
WT150	9000	776	155	3900*2000*1800	4500
WT200	12000	1035	207	3900*2000*1800	4800
WT250	15000	1294	259	5600*2300*2200	5000

备注：以上机组尺寸设计为换热器二台，循环水泵二台，补水泵二台，外形尺寸及重量仅供参考，以实际为准，公司可以根据用户要求及使用配置另行设计。

Accessen板式卫生热水机组

Accessen板式生活热水机组是运用换热组的成熟的温度控制技术，结合生活热水系统特性而设计的，分为即热式生活热水机组、半即热式生活热水机组和混合式生活热水机组即采暖与生活热水一体化机组。

用途:

1、针对于户式开发的壁挂式小型智能型全自动机组，集采暖及生活热水于一身，封闭式周期时钟程序控制，达到最佳节能效果。

2、针对公共洗浴及楼宇集中生活热水等工况设计的各种规格型号的生活热水机组。

即热式生活热水机组：

采用板式换热器，可供15－450套房间使用，

具有结构紧凑，占地小，易安装；

具有高精度温度控制，供水温度±1℃；

半即热式生活热水机组：

采用板式换热器，配置储水罐，储水罐分为开式与闭式；

适用于锅炉功率较小工况；

适用于热水需用量峰值大的工况；

混合式生活热水机组即采暖与生活热水一体化式机组

一体化设计，具有优异的性能价格比；

采暖与生活热水单独控制；

适用于高档写字楼、别墅等；

Accessen domestic hot water unit is designed by utilizing the matured technology of temperature control of heat exchanger unit in combination with the specialty of domestic hot water system, which is classified into rapid-heating domestic hot water unit, semi-heating domestic hot water unit and mixed domestic hot water unit viz the integrated unit of heating and domestic hot water.

Purpose:

1. As per different house types, the hanging minitype intelligent automatic unit, in combination of heating and domestic hot water, has a close periodical programmable control by clock to achieve best energy save.

2. The various types of domestic hot water units are designed for public bath and centralized domestic hot water of buildings.

rapid-heating domestic hot water unit:

utilizing plate type heat exchanger, available for 15-450 suites, with the features of compact

structure, less occupied area and easy assembling, having high accuracy digital control with

±1℃ water supply temperature tolerance.

semi-heating domestic hot water unit:

utilizing plate type heat exchanger, assembling water storage tank which has two

types-open type and close type;

available for the working conditions of a lower power of boiler;

available for high peak value of hot water demand;

mixed domestic hot water unit with the integrated unit of heating and domestic hot water

the integrated design has excellent comparison of performance and price;

with function of separate control of heating and domestic hot water;

available for high-ranking office building and villa;

Accessen sanitary hot water unit

Accessen板式活热水机组参数表：

功率 Power kw	生活用水量 Domestic water onsumption I/s	套房数 Number of suites	房间数 Number of rooms	喷头数 Number of sprinkle heads	医院床位数 Number of beds in hospital	备注 Remark
179	3.1	18	15	15	25	对于瞬时流量大的项目可以增加储水罐 Additional water storage tanks can be used for projects with high instantaneous flow rate
267	4.6	41	23	23	56	
349	6.1	69	30	30	94	
408	7.1	93	35	35	127	
465	8.1	118	40	40	161	
553	9.6	164	48	48	220	

注意事项

总则:

在使用调试本机组前,请详细阅读本操作手册,并严格按照操作手册中的相关规定操作.如果违反操作规定可能造成设备损坏及威胁到人身安全.

设备基础及安装要求

1、设备安装距墙及其它设备的最小距离应不小于0.5米，距其他设备应不小于1.5米，以便安装维修；
2、工艺管线入户前应设排污口，排污口的口径应不小于50mm;
3、室内应设排水污沟，排水沟不应妨碍运行操作和设备检修；
4、设备动力配电穿线管设备出、入口距地面高度大于已于100mm;
5、机组槽钢基础要设计排水通道，防止基础内存水腐蚀槽钢基础；
6、设备基础及接管位置应于设备到货后核实无误再 施工；
7、设备安装后必须先用清水冲洗干净，然后再接入换热机组，以免堵塞换热器水流道。
8、动力配电箱及设备的接地应符合设计要求。

设备安装、调试内容

换热机组安装
用户供热管网打压测试
用户供热管网扫线
关闭所有机组阀门
安装一二次侧管路及补水管路
安装控制仪表柜电源线
安装传感器、室外温度传感器位置需注意在背面阴凉处

设备起动

将循环系统进行运行前充水，并打开循环泵排气阀，排净空气。

Notice

General Provisions:

Please read the Manual and follow the instructions specified herein before operating and commissioning of the unit. Violation of the provisions may result in equipment damage and threat to personal safety.

Equipment foundation and installation requirements

1. The minimum distance between the equipment and the wall or other equipment should be not less than 0.5m to facilitate installation and maintenance;
2. Sewage draining outlet a diameter no less than 50mm should be set before process pipeline lying.
3. Sewage draining ditch should be set indoor. It shall not impede the operation and equipment maintenance;
4. The height from the inlet and outlet of equipment power distribution tube should be greater than 100mm;
5. Drainage passageway should be designed for the unit channel steel foundation to prevent water corrosion to channel steel foundation;
6. Equipment foundation and pipe receiving position shall be verified and re-constructed after the arrival of the equipment;
7. After the installation of the equipment, it shall be washed with clean water and then connected to the heat exchanger unit to prevent blockage of the flow passage of water exchanger.
8. The grounding of power distribution box and equipment should comply with the design requirement.

Installation and commissioning items

Installation of heat exchanger unit
Pressure test of user heat supply network
Pipeline cleaning of user heat supply network
Close all unit valves
Install the primary and secondary pipeline, and water replenishing line
Install the power cord of control instrument cabinet
Sensor and outdoor temperature sensor shall be installed at shade place on the back surface

Equipment startup

Fill water to the circulating system before operation. Turn on the exhaust valves of circulating pump to drain the air.

启动换热机组:

机组启动前，应检查机组主要部件，确保正常才能启动机组；换热机组得电，按照顺序打开空开，在停止机组时，断开顺序为反向。

检查换热机组的换热器上端排空阀及下端排污阀门，确认此阀门位于关闭状态，才能打开换热机组二次侧进出口主阀门。换热器上部之排空阀，仅作为换热机组排除空气用阀门，循环水泵启动前，应使用排空阀排除机组内部空气。排污阀用于排除换热机组内部污水，可适当排2-3分钟的污水，待出水干净后，关闭。

首次启动换热机组时，打开机组二次侧进出口主阀门前，应首先开启换热器之旁路阀门，然后同时打开二次侧进口与出口阀门，且打开速度尽可能慢。

在机组一次侧进出口主阀门关闭情况下，手动关闭电动调节阀。

启动循环水泵前，应关闭循环泵出口阀门，打开循环泵进口阀门。启动循环泵，并观察循环泵的叶轮转向是否正确（水泵叶轮转向在水泵外壳上均有明显标志）。将循环泵出口阀门缓慢打开。循环泵启动后，应观察循环泵，并检查循环泵的电流。

通过水泵泵壳上的放气旋塞，手动将各个泵放气。

循环泵的启动进口压力为1.0公斤，才能启动循环水泵。

循环泵运行正常后慢慢打开泵出水阀，使系统正常运行，慢慢打开板式换热器进口阀，使蒸汽或高温水进入换热器，同时注意观察系统压力变化和温度变化情况，避免超温超压。

逐步打开换热器下方的凝结水出水阀，使凝结水顺利流入流水箱。但不至于使水箱中有蒸汽冒出为好。若加热介质是高温热水时，该阀则要全部打开，以减小循环阻力。

二次网温度需要平稳缓慢的上升，期间检查机组是否有渗漏和仪表不正常。达到设计温度后，进行烤机运行，结束后再投入自动运行。

Startup of heat exchanger unit:

Before starting the unit, check the main components of the unit to see if they are normal; after the heat exchanger unit is powered on, turn on the air switches in sequence and turn off them in reversed sequence while turning off the unit.

The main valves on the secondary inlet and outlet of heat exchanger unit can be turned on after checking that the upper blow-off valve and lower drainage valve on the heat exchanger of heat exchanger unit are off. The upper blow-off valve of heat exchanger can only be used as the value of heat exchanger to drain the air. Before startup of the circulating water pump, the air inside the unit should be drained with the blow-off valve. The drainage valve is used to drain the waste water inside the heat exchanger for 2~3 minutes. Turn it off after the waste water being fully drained.

When start up the heat exchanger unit, before turn on the main valve of the secondary inlet and outlet, turn on the bypass valve of heat exchanger, and then the inlet and outlet valve at the secondary side as slowly as possible.

Turn off the electric control valve manually when the main valves at the primary inlet and outlet main valve of the machine unit are off.

Before start up the circulating pump, turn off the outlet value and turn on the inlet valve of circulating pump. Start up the circulating pump and observe whether the impeller steering of the circulating pump is correct (The impeller steering of the circulating pump is obviously marked on the pump housing.).Slowly turn on the outlet valve of the circulating pump. After start up the circulation pump, observe the circulating pump and check the current of the circulating pump.

Deflate each pump manually via the air relief cock on the water pump housing.

The circulating water pump can only be started after the inlet pressure of the circulating pump reaching 1.0kg.

Slowly turn on the pump outlet valve after the circulating pump running normally to make the system run normally. Slowly open the inlet valve of plate heat exchanger to make the steam or high temperature water enter the heat exchanger. At the same time, observe the pressure change and temperature variation of the system to avoid over-temperature and over-pressure.

Gradually turn on the condensed water outlet valve below the heat exchanger to make the condensed water smoothly flow into the water tank until no steam generated from the water tank. If high temperature hot water is used as heating medium, the valve should be fully turned on in order to reduce the circulation resistance.

The temperature of the secondary network shall increase slowly. Check whether the leakage and instrument of the unit work normally. After reaching the designed temperature, heat up the machine and then put into operation automatically.

注意事项

设备停运

1，关闭一次侧蒸汽（高温水）进口阀门，使循环温度下降；

2，停止循环泵，关闭二次侧进口阀门；

3，切断控制柜总电源；

4，关闭机组出口阀门，打开排水阀排气阀泄空机组内介质；

5，机组长期停用时，关闭机组所有阀门。

机组长期停用时

1）关闭设备上的所有关断阀。

2）断开机组电源。

机组的日常运行和维护

换热机组一般处于自动运行状态，较少的需要人为干预，只需按相关的操作规程做好历史数据的记录工作，内容包括：

一次侧进、出口的运行温度、压力和流量等

二次侧进、出口的运行温度、压力和流量等

水泵电机的电流、电压值

过滤器前后的压差值

水泵的运行是否有异常声音

温升是否正常

补水流量是否正常

根据不同时期的运行状态调节温度和流量

紧急情况的应急处理

机组的日常保养

电机运动部件的润滑工作

电气控制柜的清洁保养工作

换热器的维护保养工作

非运行状态下关闭所有阀门

打开排泄阀，排空机组的介质

停机期间对设备的检查和性能评估

Notice

Outage of equipment

1. Turn off the steam (high temperature water) inlet valve at the primary side to decrease the circulating temperature;

2. Stop the circulating pump and turn off the inlet valve at the secondary side;

3. Cut off the general power supply of the control cabinet;

4. Turn off the outlet valve of the unit and open the medium of the drain valve

5. Close all valves of the unit for long-term halt of the unit.

Long-term halt of the unit

1) Turn off all shutoff valves on the equipment.

2) Disconnect the power supply of the unit.

Daily operation and maintenance of unit

Generally the heat transfer unit is under automatic operation state requiring few human interventions. Historical data shall be recorded according to relevant operating rules, including:

Operating temperature, pressure, flow etc. at the inlet and outlet of primary side

Operating temperature, pressure, flow etc. at the inlet and outlet of secondary side

Current and voltage value of pump motor

Pressure difference before and after the filter

Any abnormal sound detected at water pump running

Whether the temperature rise is normal

Whether the water replenishing flow is normal

Adjust the temperature and flow according to the running state of different periods

Emergency treatment

Daily maintenance of the unit

Lubrication of motor parts

Cleaning and maintenance of electrical control cabinet

Heat exchanger maintenance

Turn off all valves in non-running state

Turn on the drainage valve to discharge the medium in the unit

Equipment inspection and performance evaluation during downtime

机组故障与排除

故障现象	可能原因	处理方法
压力达不到要求	泵出口阀门未打开 水系不转或转向不对 管道内有气体 回水侧压力不足 热交换器压力降增大 水泵叶轮磨损 过滤器堵塞 压力控制器故障 压力设置不当	1. 打开阀门 2. 检查水泵、变频器或调整转向 3. 打开排气阀 4. 检查补水系统 5. 检查热交换器 6. 更换叶轮 7. 清洗过滤器 8. 更换压力控制器 9. 重设压力
温度降不下	一次侧供水温度高 执行器故障 温度传感器故障 热交换器堵塞 温度控制器故障 机组负荷增加	10. 降低一次侧供水温度 11. 检修或更换执行器 12. 更换温度传感器 13. 清洗换热器 14. 检修或更换温控器 15. 减小机组负荷或增加板片
温度失控	执行器故障 温控器故障 温度传感器故障	16. 检修或更换执行器 17. 检修或更换温控器 18. 更换温度传感器
板式换热器泄漏	胶条老化 压力过高造成胶条冲破 有杂质进入造成胶条划破 板片破损	19. 更换胶条 20. 更换胶条后降低压力使用 21. 清除杂质 22. 更换板片

Failures and troubleshooting

Failure	Possible causes	Troubleshooting method
Pressure is not up to the requirement	The outlet valve of the pump is not open Drainage system does not turn or turn wrongly Gas in pipeline Underpressure at water returning side Pressure drop increasing at heat exchanger Water pump impeller abrasion Filter clogging Pressure controller failure Improper pressure setting	1. Turn on the valve 2. Check the pump, frequency converter or adjust the steering 3. Open Turn on the exhaust valve 4. Check the water replenishing system 5. Check the heat exchanger 6. Impeller replacement 7. Filter cleaning 8. Pressure controller replacement 9. Reset the pressure
Temperature dropping failure	High water supply temperature at the primary side Actuator failure Temperature sensor failure Heat exchanger clogging Temperature controller failure Unit load increasing	10. Decrease the water supply temperature at the primary side 11. Overhaul or replacement of actuator 12. Temperature sensor replacement 13. Heat exchanger cleaning 14. Overhaul or replacement of temperature controller 15. Reduce the unit load or increase plates
Temperature out of control	Actuator failure Temperature controller failure Temperature sensor failure	16. Overhaul or replacement of actuator 17. Overhaul or replacement of temperature controller 18. Temperature sensor replacement
Leakage of plate heat exchanger	Rubber strip aging Strip breaking arising from over-pressure Strip breaking arising from impurity invasion Plate breakage	19. Rubber strip replacement 20. Reduce the pressure after replacing the rubber strip 21. Impurities removing 22. Plate replacement

换热机组常用部件

增值服务

你可以向艾克森咨询整机的维护保养服务，为你提供的维护保养合同能让你在使用换热设备的时候无后顾之后，通过合理的保养延长设备使用寿命、预防性维护降低设备使用过程中的停机损失。

咨询电话：4006-191-191

注意事项

设备发生如下情况时应立即停机检查；

*水泵起动不正常，有噪声、发热(烫手)及启动困难；

*仪表指示失灵；

*系统严重泄漏；

*汽一水交换时凝结水超温(二次蒸发)，凝结水堵塞。

*水一水热交换时循环不畅通或高温水二次蒸发。

△循环系统充水则禁止启动水泵。

△普通型换热机组介质温度不超过180℃，若介质温度超过180℃，应注明该设备为高温型。

⚠ 危险标准

1、循环系统严禁无水启动。

2、应根据机组铭牌确定蒸汽及工艺水的压力，不能超压使用。

Value-added services

You can consult Accessen about the maintenance services of the whole machine. The user of heat exchanger can enjoy after service services upon the maintenance contract. The equipment service life of equipment can be extended through reasonable maintenance. Reduce the downtime losses during equipment operating process through preventive maintenance.

Consulting telephone: 4006-191-191

Precautions

The equipment should be stopped to check immediately as follows;

*Abnormal starting of the water pump, abnormal start, noise, heat (hot) and start-up difficulty;

* Instrument indication failure;

* Serious leakage of the system;

* Condensed water over-temperature (secondary evaporation) at steam-water exchange and condensation water clogging.

* Unsmooth circulation or secondary evaporation of high temperature water at water-water heat exchange.

△The water pump is prohibited to start up in case of water filling of circulating system.

△The temperature of the medium of ordinary heat exchanger unit shall not exceed 180 ℃. Otherwise, the equipment shall be indicated as high temperature type.

Hazard standards

1. The circulation system is strictly prohibited to be started up without water.

2. Steam and process water pressure shall be determined according to the nameplate. Overpressure operation is prohibited.

Common components of heat exchanger unit

水泵

泵启动

注意：在液体未充满泵成泵体内空气未排净之前，不允许启动泵。

1、（泵的）注水

①关闭阀门，松开泵头上的放气螺塞，旋出至一定开度，以便将泵体内空气排除。应该注意，不要将放气螺塞上的排气小孔对着人、电机或其他不宜接触管路内液体的物体。同时，也不要将放气螺塞取下，尤其是抽送热水或化学制剂的泵装置，此操作更应该注意不要对着人、电机或其他不宜接触管路内液体的物体，以防被伤害。

②缓慢打开阀门，直到排气孔内的液体均匀流出时为止。

③拧紧放气螺塞，并完全打开阀门。

2、运转

①泵在启动前，应完全打开进口阀门，稍开出口阀。

②启动泵检查转向，缓慢打开出口阀将泵流量调节至所需工况。

③注息泵的运行情况，发现异常及时停机检查并排除。

维修和保养

泵开始工作之前，要确保开关能够可靠的开启、关闭，以保证电源口可以自由切换。

1、泵部分

泵应定期检查保养，如果泵在较长时间内停止使用，应在轴和轴封之间注入适硅化脂润滑油，防止轴封面粘结。

2、电机

①电机须有规律的进行检查。保证正常的通风，保持电机的清洁。

②如果泵是安装在一个灰尘较多的环境中，必须对电机进行有规律的检查和清理。

Water pump

Pump startup

Note: The pump shall not be started up before filling liquid to the pump or air discharging.

1. Water injection (pump)

① Turn off the valve, unscrew the deflation plugs on the pump to certain degree to discharge the air in the pump. It should be noted that do not place the vent holes on the deflation plug to face the operator. Motor or other objects are not suitable for contacting with the liquid in the pipeline. In addition, do not remove the deflation plugs, especially those on the pumps for hot water or chemical agents. Motor or other objects are not suitable for contacting with the liquid in the pipeline.

② Slowly open the valve until the liquid in the vent flows out evenly.

③ Tighten the deflation plugs and completely open the valve.

2. Operation

① Fully open the inlet valves and slightly open the outlet valve before start up the pump.

② Start up the pump to check the steering direction. Slowly open the outlet valve to regulate the pump flow to the required conditions.

③ Pay attention to the running state of the pump. In case of any abnormality being detected, stop the pump and carry out troubleshooting.

Repair and maintenance

Before the pump starts to work, make sure that the switch can be turned on and off reliably so that the power supply can be switched freely.

1. Pump section

Pumps should be regularly inspected and maintained. If the pump is stopped for long time, inject suitable silicone grease between the shaft and shaft seal to prevent shaft seal bonding.

2. Motor

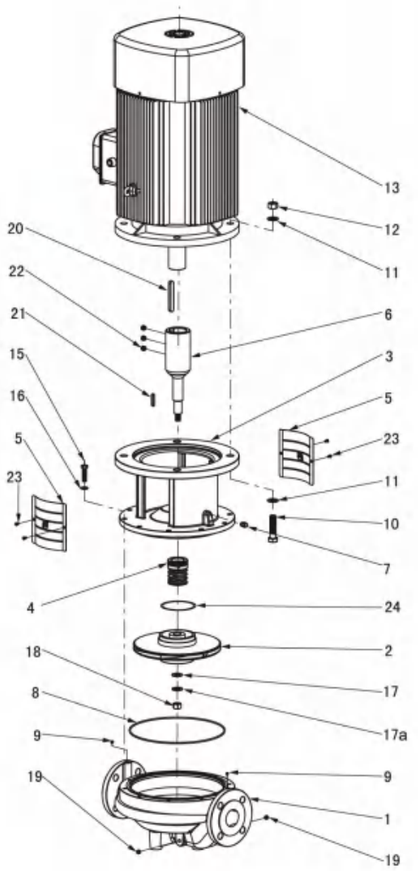
① The motor must be inspected regularly. Ensure normal ventilation and keep the motor clean.

② If the pump is installed in a dusty environment, the motor must be regularly inspected and cleaned.

换热机组常用部件

Common components of heat exchanger unit

泵部件图 **Pump component diagram**



1、泵体	1. Pump body
2、叶轮	2. Impeller
3、泵头	3. Pump head
4、机械密封	4. Mechanical seal
5、防护板	5. Protective shield
6、泵轴	6. Pump shaft
7、放气组合件	7. Deflation assembly
8、O形圈	8. O-ring
9、锥管螺纹内六角螺塞	9. Taper-thread hexagonal socket head plug
10、螺塞	10. Plug
11、垫圈	11. Gasket
12、螺母	12. Nut
13、电机	13. Motor
15、螺栓	15. Bolt
16、垫圈	16. Gasket
17、垫圈	17. Gasket
17a、弹簧垫圈	17a. Spring washer
18、螺母	18. Nut
19、锥管螺纹内六角螺塞	19. Taper-thread hexagonal socket head plug
20、键	20. Key
21、键	21. Key
22、内六角凹端紧钉螺钉	22. Hexagon concave end nail screw
23、十字槽盘头螺钉	23. Cross recess pan head screw
24、口环（只存在于60Hz的泵）	24. Impeller ring (only exist in the 60Hz pump)

重要事项

1、本使用说明书的内容如有更改，恕不另行通知；

2、用户在选型适当，正常使用情况下，泵三包一年，易损件的正常磨损小在此限。

Important notes

1. The contents of this instruction are subject to change without prior notice;

2. The pump is under “three guarantees” for one year in case of proper model selection and normal operation. The normal wear of vulnerable parts is not covered by the scope of “three guarantees”.

常见故障及处理方法

⚠ 在拆下电机接线盒盖以及拆卸泵之前，必须确保电源已经被切断

故障现象	原因分析	排除方法	备注
当启动器合上，电动机不能起动。	a) 电源故障 b) 保险丝断了 c) 电机过载 d) 启动器接触不好或线圈有问题 e) 控制电路有问题 f) 电机出故障	a) 检查电源 b) 更换保险丝 c) 检查系统 d) 更换启动器 e) 检查控制电路 f) 修理	
启动器过软装置跳开（电源合上立即跳开）	a) 保险丝断了 b) 过载装置接触有问 c) 电缆接线松开了或电源有问题 d) 电机线圈有问越 e) 泵的机械部分擦牢了	a) 更换保险丝 b) 检查启动器 c) 检查电缆接线和电源 d) 更换电机 e) 检修泵	d）、e）项用户不得擅自拆修
过敢装置偶然跳开	a) 过载设置太低 b) 周期性电源故障 c) 高峰用电时的低电压	a) 重新设置 b) 检修电源 c) 加稳压装置	
过教装置没有跳开，但泵不能工作。	a) 启动器接触不好或线圈有问题 b) 控制电路有问题	a) 更换启动器 b) 检查控制电路	
泵出水不均	a) 进水管路太小 b) 在泵进口处，没有足够的水 c) 液面太低 d) 与水温、管路损失和流量相比，进门压力太小 e) 进水管部分被杂质堵塞	a) 增大进水管路 b) 改进系统，设法增加水量 c) 设法升高液面 d) 改进系统，设法增大进口压力 e) 检查及清污	
泵在运转但不出水	a) 进水管被杂质堵塞 b) 底阀或止回阀在关死位置 c) 进水管泄漏 d) 进水管或泵中有空气	a) 检查及清污 b) 检修底阀和止回阀 c) 检修进水管路 d) 重新灌液，排除空气	
当电源断开，泵反方向运转	a) 进水管泄漏 b) 底阀或止回阀有故障 c) 底阀在开或部分开的位置受阻 e) 水管有气囊	a) 检修进水管路 b) 检修底阀和止回阀 c) 检修底阀 d) 检修进水管路，排除空气	
泵有异常振动和杂音	a) 进水管泄漏 b) 进水管太小或部分地被杂质堵塞 c) 进水管或泵中有空气 d) 装置扬程与泵扬程比太低 e) 泵的机械部分相擦	a) 检修进水管路 b) 增大或检修进水管路 c) 重新灌液、排除空气 d) 改进系统或重新选型 e) 检修泵	e）项用户不得擅自拆修

换热机组常用部件

Common failures and troubleshooting methods

⚠ Before removing the lid of the motor junction box and the pump, the power should be cut off.

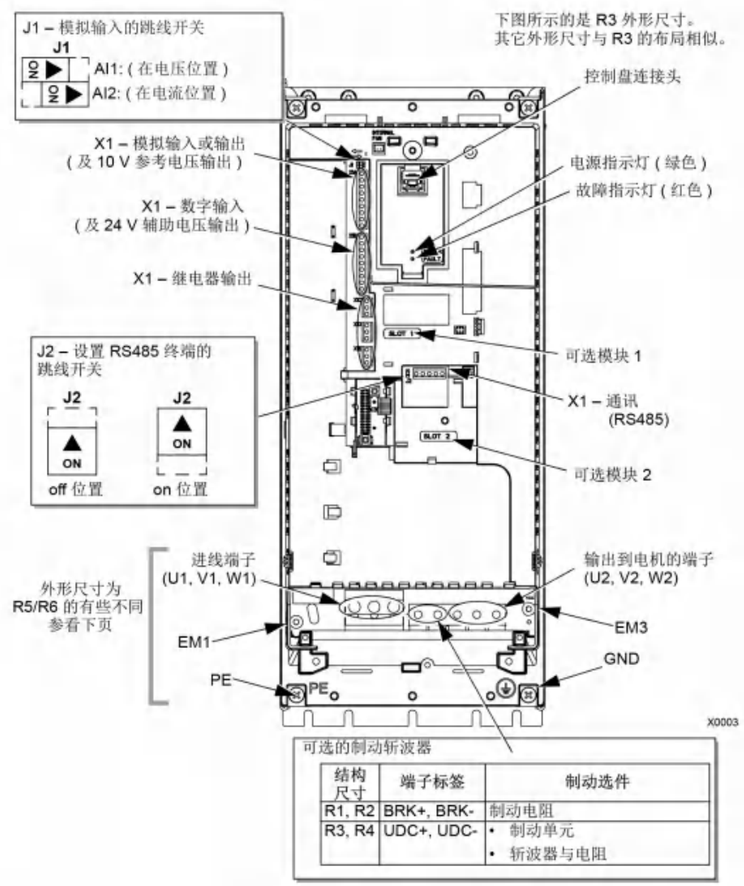
Failure	Cause analysis	Troubleshooting method	Remarks
Motor startup failure when the starter is closed	A) Power failure B) Fuse broken C) Motor overload D) Poor initiator contact or coil failure E) Control circuit failure F) Motor failure	A) Check the power supply B) Replace the fuse C) Check the system D) Replace the initiator E) Check the control circuit F) Repair	
Initiator over-soft device tripping (trip immediately after closing the power)	A) Fuse broken B) Overload device contact failure C) Cable releasing or power failure D) Motor coil failure E) Mechanical part of the pump wiped firmly	A) Replace the fuse B) Check the initiator C) Check cable wiring and power supply D) Replace the motor E) Overhauling pump	D) E) Users shall not perform overhauling without authorization
Accidental tripping of the overload device	A) Overload setting is too low B) Periodic power failure C) Low voltage at peak power consumption	A) Reset B) Maintenance of power supply C) Add a voltage stabilizer	
The overload device is not jump off but the pump could not work.	A) Poor initiator contact or coil failure B) Control circuit failure	A) Replace the initiator b) Check the control circuit	
Uneven pump effluent	A) The water inlet pipeline is too small B) Insufficient water at the pump inlet C) The liquid level is too low D) Compared with the water temperature, pipeline loss and flow, the inlet pressure is too low E) The inlet pipe is partially blocked by impurities	A) Increase the water inlet line B) Improve the system and try to increase water volume C) Try to raise the liquid level D) Improve the system and try to increase the inlet pressure E) Inspection and decontamination	
Pump running but without water outlet	A) The inlet pipe is blocked by impurities B) The bottom valve or check valve is at the dead position C) Water inlet leakage D) Air in the inlet pipe or pump	A) Inspection and decontamination B) Bottom valve or check valve maintenance C) Water inlet pipeline maintenance D) Refill the fluid to discharge the air	
When the power is disconnected, the pump will run in reverse direction.	A) Water inlet leakage B) Bottom valve or check valve failure C) Bottom valve being blocked at fully or partially open position E) Air bag on water pipeline	A) Water inlet pipeline maintenance B) Bottom valve or check valve maintenance C) Bottom valve maintenance d) Water inlet pipeline maintenance to discharge the air	
Abnormal vibration and noise of pump	A) Water inlet leakage B) The inlet pipe is too small or partially blocked by impurities C) Air in the inlet pipe or pump D) The device lift and pump lift ratio is too low E) Mechanical part wiping of the pump	A) Water inlet pipeline maintenance b) Water inlet pipeline increasing or maintenance C) Refill the fluid to discharge the air D) Improvement system or model re-selection E) Overhauling pump	e) Users shall not perform overhauling without authorization

Common components of heat exchanger unit

变频器

功率电缆接线图

下图表示的是外形尺寸为R3 的模块的端子布局图。原则上，所有结构尺寸(R1…R6)的接线布置图都是相似的。对于结构尺寸R5 和R6 模块最明显的不同只是在功率端子和接地端子。



⚠ 警告！对于浮地电网、高阻接地电网或非对称接地电网，需要拆下内部RFI 滤波器上的接地螺钉EM1 和 EM3。

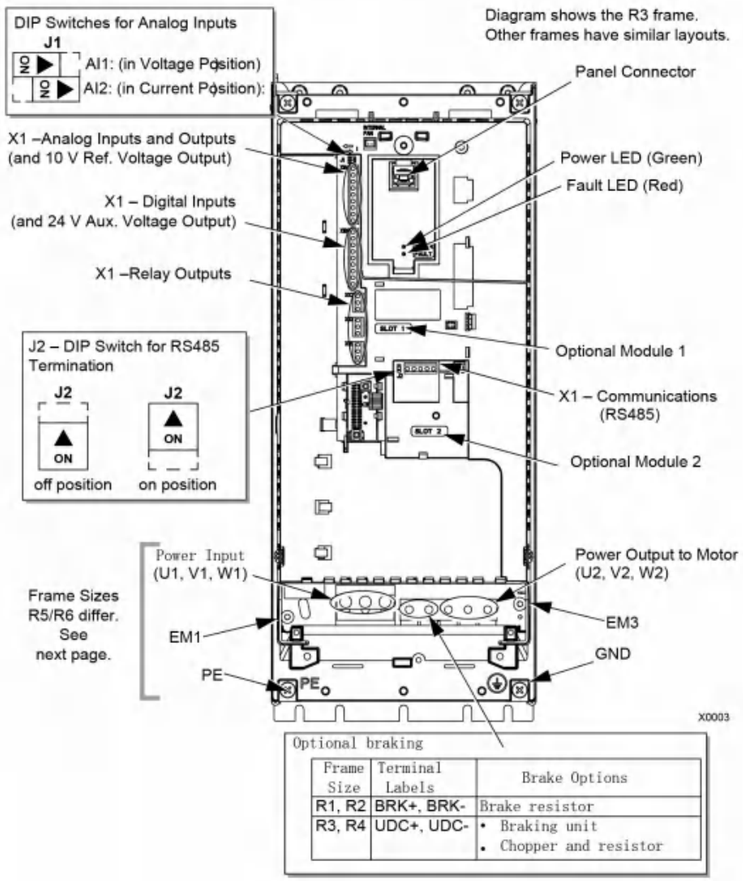
换热机组常用部件

Common components of heat exchanger unit

Drives

Power Connection Diagrams

The following diagram shows the terminal layout for frame size R3, which, ingeneral, applies to frame sizes R1…R6, except for the R5/R6 power and ground terminals.



Optional braking

Frame Size	Terminal Labels	Brake Options
R1, R2	BRK+, BRK-	Brake resistor
R3, R4	UDC+, UDC-	• Braking unit • Chopper and resistor

Warning! For floating, impedance grounded, or unsymmetrically grounded networks, disconnect the internal RFI filter by removing: – screws EM1 and EM3.

控制端子表

下表描述了控制端子 X1 的定义。

	X1		硬件描述
模拟 I/O	1	SCR	控制信号电缆屏蔽端（内部与机壳连接）。
	2	AI1	模拟输入 1，可编程，默认[2] = 频率给定。分辨率 0.1%, 精度 ±1%。
			J1: AM OFF:0...10V(R_i= 312kQ)
			J1: AM ON: 0...20 mA(R_i= 100 Q)
	3	AGND	模拟输入电路公共端（内部通过 1 MD 电阻与机壳连接）。
	4	+10 V	用于模拟输入电位器的参考电压输出，10 V ±2%，最大 10mA(1kQ £Rs10kQ)。
	5	AI2	模拟输入 2, 可编程，默认 2 = 不使用。分辨率 0.1%, 精度 ±1%。
			J1: AI2 OFF: 0...10 V (R_i= 312 kQ)
			J1: AI2 ON: 0...20 mA(R_i= 100 Q)
	6	AGND	模拟输入电路公共端（内部通过 1 MD 电阻与机壳连接）。
	7	A01	模拟输出 1, 可编程，默认[2] = 频率。0...20 mA (负载 <500 0)，精度 ±3%。
	8	A02	模拟输出 2, 可编程，默认[2] = 频率。0...20 mA (负载 <500Q)，精度 ±3%。
	9	AGND	模拟输入电路公共端（内部通过 1 MD 电阻与机壳连接）。
数字输入	10	+24 V	辅助电压输出 24 V DC / 250 mA (以 GND 为参考)。有短路保护。
	11	GND	辅助电压输出公共端（内部浮地连接）。
	12	DCOM	数字输入公共端[1]。为了激活一个数字输入，输入和 DCOM 之间必须 2+10V (或 S-10V)。24 V 可以由 ACS510 的 (X1-10) 提供或由一个 12...24V 的双极性外部 电源提供。
	13	DM	数字输入 1，可编程。默认[2] = 起 / 停。
	14	DI2	数字输入 2，可编程。默认[2] = 正向 / 反向。
	15	DI3	数字输入 3，可编程。默认[2] = 恒速选择。
	16	DI4	数字输入 4，可编程。默认[2] = 恒速选择。
	17	DI5	数字输入 5，可编程。默认[2] = 斜坡选择。
	18	DI6	数字输入 6，可编程。默认[2] = 未使用。

注 1：数字输入阻抗1.5 kΩ。数字输入最大电压30 V。

注2：默认值根据选用的宏的不同而不同。这里给出的是默认宏的默认值。

注意! 端子3、6 和9 都是等电位的。

换热机组常用部件

Common components of heat exchanger unit

Control Terminals Table

The following provides information for connecting control wiring at X1 on the drive.

	X1		Hardware Description
Analog I/O	1	SCR	Terminal for signal cable screen. (Connected internally to chassis ground.)
	2	AI1	Analog input channel 1, programmable. Default2 = frequency reference. Resolution 0.1%, accuracy ±1%.
			J1:AI1 OFF: 0...10 V (Ri = 312 kΩ)
			J1:AI1 ON: 0...20 mA (Ri = 100 Ω)
	3	AGND	Analog input circuit common (connected internally to chassis gnd. through 1 MΩ).
	4	+10 V	Potentiometer reference source: 10 V ±2%, max. 10 mA (1kΩ < R < 10kΩ).
	5	AI2	Analog input channel 2, programmable. Default2 = not used. Resolution 0.1%,accuracy ±1%.
			J1:AI2 OFF: 0...10 V (Ri = 312 kΩ)
			J1:AI2 ON: 0...20 mA (Ri = 100 Ω)
	6	AGND	Analog input circuit common (connected internally to chassis gnd. through 1 MΩ).
	7	A01	Analog output, programmable. Default2 = frequency. 0...20 mA (load < 500 Ω).Accuracy ±3%.
	8	A02	Analog output, programmable. Default2 = current. 0...20 mA (load < 500 Ω).Accuracy ±3%.
	9	AGND	Analog output circuit common (connected internally to chassis gnd. through 1 MΩ).
Digital input	10	+24 V	Auxiliary voltage output 24 V DC / 250 mA (reference to GND), short circuit protected.
	11	GND	Auxiliary voltage output common (connected internally as floating).
	12	DCOM	Digital input common. To activate a digital input, there must be ≥ +10 V (or ≤ -10 V) between that input and DCOM. The 24 V may be provided by the ACS510 (X1-10) or by an external 12... 24 V source of either polarity.
	13	DM	Digital input 1, programmable. Default2 = start/stop.
	14	DI2	Digital input 2, programmable. Default2 = fwd/rev.
	15	DI3	Digital input 3, programmable. Default2 = constant speed sel (code).
	16	DI4	Digital input 4, programmable. Default2 = constant speed sel (code).
	17	DI5	Digital input 5, programmable. Default2 = ramp pair selection (code).
	18	DI6	Digital input 6, programmable. Default2 = not used.

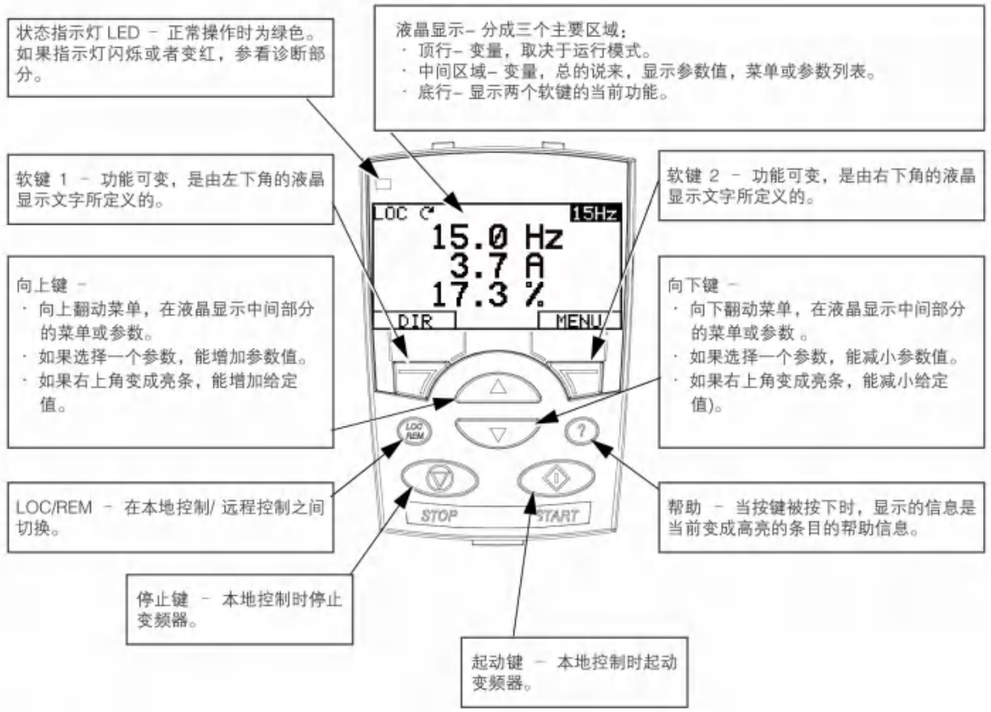
1 Digital input impedance 1.5 kΩ. Maximum voltage for digital inputs is 30 V.

2 Default values depend on the macro used and software options. Values specified are for the default macro. See "Application Macros" on page 42.

Note! Terminals 3, 6, and 9 are at the same potential.

控制/ 显示概述

下表描述了助手型控制盘的按键功能和显示信息。



一般显示性能

软键功能

每个软键上方的文字描述的是当前软键功能的含义。

显示对比度

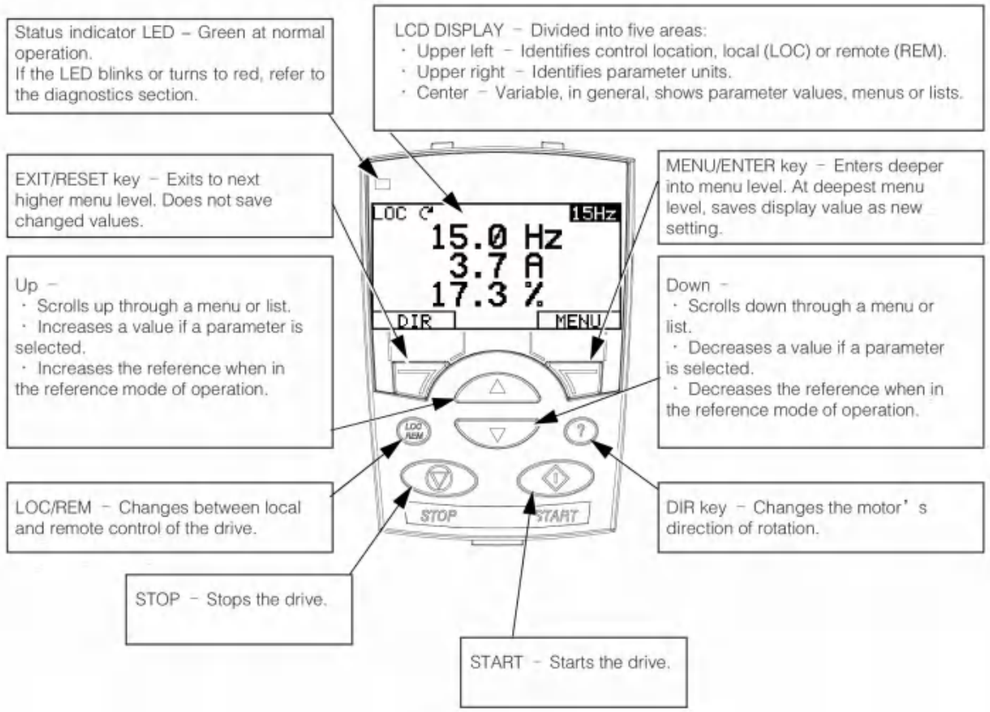
同时按住 MENU(菜单) 键和 UP(向上) 或DOWN(向下) 可以改变显示对比度。

换热机组常用部件

Common components of heat exchanger unit

Controls/Display Overview

The following table summarizes the button functions and displays on the Basic Control Panel.



Output Mode

Use the Output mode to read information on the drive's status and to operate the drive. To reach the Output mode, press EXIT/RESET until the display shows status information as described below.

故障诊断

警告！ 不要试图进行本手册中没有涉及的任何测量、器件更换或其它维修工作。否则将可能导致保修失效，危及正常运行，延长设备停机时间和增加费用等后果。

警告！本章中所介绍的所有电气安装和维护工作都必须由专业的电气工程师进行。操作时必须遵守本手册最开始的安全指导。

诊断显示

传动单元检测到异常事件，使用下列方式进行显示：

· 传动单元柜体上的绿色或红色LED 指示灯。

· 控制盘上的 LED 指示灯(如果装有控制盘)。

· 控制盘显示屏(如果装有控制盘)。

· 故障字和报警字(参数 0305 到 0309)。故障字和报警字各位的定义，请参见说明书第66 页的参数组03：FB 实际信号部分。

显示形式取决于事件的严重程度。用户可以定义事件的严重程度，使传动根据事件的

严重程度做出不同的反应：

· 忽略该事件信息。

· 报告报警信息。

· 报告故障信息。

红灯亮 – 故障

传动监测到一个严重的问题或故障之后，可能会作出下列反应：

· 点亮传动单元上的红色LED 指示灯(LED 亮或闪烁)。

· 控制盘上的红色LED 指示灯亮（如果变频器上有控制盘）

· 在故障字参数(0305 到0307 ）里设置对应位。

· 控制盘显示故障代码。

· 电机停止(如果正在运行)。

控制盘上的故障代码显示是暂时的，按下列任何一键可清除故障信息：MENU(菜单)、 ENTER(进入)、UP(上) 或DOWN(下)。如果故障依然存在，故障信息会在几秒钟后再次出现。

Diagnostics:

Warning! Do not attempt any measurement, parts replacement or other service procedure not described in this manual. Such action will void the warranty, may endanger correct operation, and increase downtime and expense.

Warning! All electrical installation and maintenance work described in this chapter should only be undertaken by qualified service personnel. The Safety instructions on the first pages of this manual must be followed.

Diagnostic Displays

The drive detects error situations and reports them using:

• The green and red LED on the body of the drive

• The status LED on the control panel (if an Assistant control panel is attached to the drive)

• The control panel display (if a control panel is attached to the drive)

• The Fault Word and Alarm Word parameter bits (parameters 0305 to 0309). See "Group 03: FB Actual Signals" on page 69 for the bit definitions. The form of the display depends on the severity of the error. You can specify the severity for many errors by directing the drive to:

• Ignore the error situation.

• Report the situation as an alarm.

• Report the situation as a fault.

Red – Faults

The drive signals that it has detected a severe error, or fault, by:

• Enabling the red LED on the drive (LED is either steady on or blinking).

• Showing the steady red status LED on the control panel (if attached to the drive).

• Setting an appropriate bit in a Fault Word parameter (0305 to 0307).

• Overriding the control panel display with the display of a fault code.

• Stopping the motor (if it was on).

The fault code on the control panel display is temporary. Pressing any of the following keys removes the fault message: MENU, ENTER, UP button, or DOWN key. The message reappears after a few seconds if the control panel is not touched and the fault is still active.

换热机组常用部件

绿灯闪烁 – 报警

不太严重的错误，称为报警，诊断显示是建议性的。出现不太严重的错误时，传动单元通常用下列方式报告发现异常：

· 传动单元上绿LED 指示灯闪烁(不适用于来自于控制盘操作错误引起的报警)。

· 控制盘上的绿色LED 指示灯亮 (如果变频器上有控制盘)

· 报警字参数(0308 或 0309) 的相应位。关于报警字各位的定义，请参见说明书第66 页的参数组03：FB 实际信号部分。

显示形式取决于事件的严重程度。用户可以定义事件的严重程度，使传动根据事件的严重程度做出不同的反应：

· 忽略该事件信息。

· 报告报警信息。

· 报告故障信息。

· 利用控制盘查看报警代码和信息。

几秒钟后报警信号会从控制盘上消失。但是只要报警情况存在，报警信息将周期性的返回到控制盘上。

Flashing Green – Alarms

For less severe errors, called alarms, the diagnostic display is advisory. For these situations, the drive is simply reporting that it had detected something "unusual." In these situations, the drive:

• Flashes the green LED on the drive (does not apply to alarms that arise from control panel operation errors).

• Flashes the green LED on the control panel (if attached to the drive).

• Sets an appropriate bit in an Alarm Word parameter (0308 or 0309). See "Group 03: FB Actual Signals" on page 69 for the bit definitions.

• Overrides the control panel display with the display of an alarm code and/or name.

Alarm messages disappear from the control panel display after a few seconds. The message returns periodically as long as the alarm condition exists.

Common components of heat exchanger unit

故障排除

推荐的纠正方法为：

· 使用ABB变频器说明书的" 故障列表" 找出问题的主要原因。

· 传动复位。参见说明书第202页的" 故障复位" 部分。

故障列表：

Correcting Faults

The recommended corrective action for faults is:

• Use the "Fault Listing" table below to find and address the root cause of the problem.

• Reset the drive. See "Fault Resetting" on page 201.

故障代码	控制盘上显示的故障名称	故障描述及其纠正措施
1	OVERCURRENT 过流	输出电流过大。检查和排除： • 电机过载。 • 加速时间过短 (参数 2202 ACCELER TIME 1 (加速时间 1) 和 2205 ACCELER TIME 2 (加速时间 2))。 • 电机故障，电机电缆故障或接线错误。
2	DC OVERVOLT 直流过压	中间回路 DC 电压过高。检查和排除： • 输入侧的供电电源发生静态或瞬态过电压。 • 减速时间过短 (参数 2203 DECELER TIME 1 (减速时间 1) 和 2206 DECELER TIME 2 (减速时间 2))。 • 制动斩波器选型太小 (如果有)。 • 确认过电压控制器处于正常工作状态 (使用参数 2005)。
3	DEV OVERTEMP 过温	散热器过温。温度达到或超过极限值。 R1 ∽ R4 ： 115 ° C R5/R6： 125 ° C 检查和排除： • 风扇故障。 • 空气流通受阻。 • 散热器积尘。 • 环境温度过高。 • 电机负载过大。
4	SHORT CIRC 短路	短路故障。检查和排除： • 电机电缆或电机短路。 • 供电电源扰动。
6	DC UNDERVOLT 直流欠压	中间回路 DC 电压不足。检查和排除： • 供电电源缺相。 • 熔断器熔断。 • 主电源欠压。
7	AI1 LOSS AI1 丢失	模拟输入 1 丢失。模拟输入值小于参数 3021 AI1FLT LIMIT (AI 故障极限) 的值。检查和排除： • 模拟输入信号源及其接线。 • 参数 3021 AI1FLT LIMIT (AI 故障极限)的设置，并且检查 3001 AI<MIN FUNCTION (AI 故障功能)。
8	ai2 loss AI2 丢失	模拟输入 2 丢失。模拟输入值小于参数 3022 AI2 FLT LIMIT (AI 故障极限) 的 值。检查和排除： • 模拟输入信号源及其接线。 • 参数 3022 AI2 FLT LIMIT (AI故障极限)的设置，并且检查 3001 AI<MIN FUNCTION (AI 故障功能)。
9	MOT TEMP 电机过温	电机过热，基于传动的估算或温度反馈信号。 • 检查电机是否过载。 • 调整用于估算的参数 (3005 ∽ 3009)。 • 检查温度传感器和参数组 35 中的参数设置。

换热机组常用部件

Common components of heat exchanger unit

Fault Code	Fault Name In Panel	Description and Recommended Corrective Action
1	OVERCURRENT	Output current is excessive. Check for and correct: • Excessive motor load. • Insufficient acceleration time (parameters 2202 ACCELER TIME 1 and 2205 ACCELER TIME 2). • Faulty motor, motor cables or connections.
2	DC OVERVOLT	Intermediate circuit DC voltage is excessive. Check for and correct: • Static or transient overvoltages in the input power supply. • Insufficient deceleration time (parameters 2203 DECELER TIME 1 and 2206 DECELER TIME 2). • Undersized brake chopper (if present). • Verify that overvoltage controller is ON (using parameter 2005).
3	DEV OVERTEMP	Drive heatsink is overheated. Temperature is at or above limit. R1...R4 : 115 ° C (239 ° F) R5/R6: 125 ° C (257 ° F) Check for and correct: • Fan failure. • Obstructions in the air flow. • Dirt or dust coating on the heat sink. • Excessive ambient temperature. • Excessive motor load.
4	SHORT CIRC	Fault current. Check for and correct: • A short-circuit in the motor cable(s) or motor. • Supply disturbances.
6	DC UNDERVOLT	Intermediate circuit DC voltage is not sufficient. Check for and correct: • Missing phase in the input power supply. • Blown fuse. • Undervoltage on mains.
7	AI1 LOSS	Analog input 1 loss. Analog input value is less than AI1FAULT LIMIT (3021). Check for and correct: • Source and connection for analog input. • Parameter settings for AI1FAULT LIMIT (3021) and 3001 AI<MIN FUNCTION.
8	ai2 loss	Analog input 2 loss. Analog input value is less than AI2 FAULT LIMIT (3022). Check for and correct: • Source and connection for analog input. • Parameter settings for AI2 FAULT LIMIT (3022) and 3001 AI<MIN FUNCTION.
9	MOT TEMP	Motor is too hot, based on either the drive’ s estimate or on temperature feedback. • Check for overloaded motor. • Adjust the parameters used for the estimate (3005...3009). • Check the temperature sensors and Group 35 parameters.

故障代码	控制盘上显示的故障名称	故障描述及其纠正措施
10	PANEL LOSS 控制盘丢失	控制盘通讯丢失，并且： • 传动处于本地控制（控制盘显示 LOC，本地），或 • 传动处于远程控制模式（REM，远程），且起 / 停 / 方向 / 给定值信号来自控 制盘。 检查： • 通讯链路和接线。 • 参数 3002 PANEL COMM ERROR（控制盘丢失故障）。 • 参数组 10 的参数：控制命令输入和参数组 11 给定选择（传动单元运行于 REM（远程）模式）。
11	保留	未用。
12	MOTOR STALL 电机堵转	电机或工艺堵转。电机运行于堵转区。检查以下各项： • 过载。 • 电机功率不够。 • 参数 3010 ∽ 3012。
13	保留	未用
14	EXTERNALFLT 1 外部故障 1	第一外部故障报警对应的数字输入激活。参见参数 3003 EXTERNAL FAULT 1（外部故障 1)。
15	EXTERNALFLT 2 外部故障 2	第二外部故障报警对应的数字输入激活。参见参数 3004 EXTERNAL FAULT 2（外部故障 2)。
16	EARTH FAULT 接地故障	可能在电机或电机电缆处检测到的接地故障。传动运行或停止的时候都监控 接地故障。传动停止时接地故障检测的灵敏度更高，并且能够报告发生故障 的位置。 纠正措施： • 检查 / 排除进线接地故障。 • 保证电机电缆的长度没有超过允许的最大长度。 • 如果输入电源是三角形连接，而且输入功率电缆的电容很大，则可能导致 传动停止情况下的接地故障误报。如果想要禁止传动停止时的故障检测 功能，使用参数 3023 WIRING FAULT（接线故障）。要禁止所有的接地故 障检测功能，请使用参数 3017。
17	保留	未用
18	THERM FAIL	内部故障。监测传动的内部温度热敏电阻断开或短路。请与本地 ABB 办事 处联系。
19	OPEX LINK OPEX 连接	内部故障。监测到在 OMIO 和 OITFA 板之间的通讯有问题。请与本地 ABB 办事处联系。
20	OPEX PWR OPEX 电源	内部故障，监测到 OITF 板欠压。请与本地 ABB 办事处联系。
21	CURR MEAS 电流测量	内部故障，电流测量超过范围。请与本地 ABB 办事处联系。
22	SUPPLY PHASE 电源缺相	DC 回路的纹波电压太高，检查以下两项： • 主电源缺相。 • 熔断器熔断。
23	如果这个错误代码出现，查找相关附件手册。	
26	DRIVE ID 传动识别号	内部故障。变频器 ID 配置无效。请与当地 ABB 办事处联系。
27	CONFIG FILE 配置文件	内部配置文件出错。请与当地 ABB 办事处联系。

换热机组常用部件

Common components of heat exchanger unit

Fault Code	Fault Name In Panel	Description and Recommended Corrective Action
10	PANEL LOSS	Panel communication is lost and either: • Drive is in local control mode (the control panel displays LOC), or • Drive is in remote control mode (REM) and is parameterized to accept start/stop, direction or reference from the control panel. To correct check: • Communication lines and connections • Parameter 3002 PANEL COMM ERR. • Parameters in Group 10: Command Inputs and Group 11: Reference Select (if drive operation is REM).
11	REVERSED	Not used.
12	MOTOR STALL	Motor or process stall. Motor is operating in the stall region. Check for and correct: • Excessive load. • Insufficient motor power. • Parameters 3010...3012.
13	REVERSED	Not used.
14	EXTERNALFLT 1	Digital input defined to report first external fault is active. See parameter 3003 EXTERNAL FAULT 1.
15	EXTERNALFLT 2	Digital input defined to report second external fault is active. See parameter 3004 EXTERNAL FAULT 2.
16	EARTH FAULT	Possible ground fault detected in the motor or motor cables. The drive monitors for ground faults while the drive is running and while the drive is not running. Detection is more sensitive when the drive is not running and can produce false positives. Possible corrections: • Check for/correct faults in the input wiring. • Verify that motor cable does not exceed maximum specified length. • A delta grounded input power supply and motor cables with high capacitance may result in erroneous error reports during non-running tests. To disable response to fault monitoring when the drive is not running, use parameter 3023 WIRING FAULT. To disable response to all ground fault monitoring, use parameter 3017 EARTH FAULT.
17	REVERSED	Not used.
18	THERM FAIL	Internal fault. The thermistor measuring the internal temperature of the drive is open or shorted. Contact your local ABB representative.
19	OPEX LINK	Internal fault. A communication-related problem has been detected on the fiber optic link between the control and OINT boards. Contact your local ABB sales representative.
20	OPEX PWR	Internal fault. Low voltage condition detected on OINT power supply. Contact your local ABB representative.
21	CURR MEAS	Internal fault. Current measurement is out of range. Contact your local ABB representative.
22	SUPPLY PHASE	Ripple voltage in the DC link is too high. Check for and correct: • Missing mains phase. • Blown fuse.
23	If this error code appears, refer to the appropriate accessory manual.	
26	DRIVE ID	Internal fault. Configuration Block Drive ID is not valid. Contact your local ABB sales representative.
27	CONFIG FILE	Internal configuration file has an error. Contact your local ABB sales representative.

故障代码	控制盘上显示的故障名称	故障描述及其纠正措施
28	SERIAL 1 ERR 串口 1 故障	现场总线通讯超时。检查以下各项： • 故障设置（3018 COMM FAULT FUNC（通讯故障功能）和 3019 COMM FAULT TIME（通讯故障时间））。 • 通讯设置（组 51 或 53 的设置是否合适）。 • 通讯链路连接不好或有干扰。
29		
30	FORCE TRIP 强制跳闸	由现场总线强迫故障停车。参见现场总线用户手册。
31	EFB 1	为嵌入式现场总线（EFB）协议应用程序保留的故障代码。采用的协议不同，故障代码的含义也不相同。
32	EFB 2	
33	EFB 3	
34	MOTOR PHASE 电机缺相	电机回路有故障。电机缺相。检查以下各项： • 电机故障。 • 电机电缆故障。 • 热敏继电器故障（如果使用）。 • 内部故障
35	OUTPUT WIRING 输出接线故障	功率接线错误。当传动停止时，该故障代码监测着传动输入功率电缆和输出 功率电缆的正确连接。检查以下两项： • 输入电缆连接正确 - 电源电压没有接到传动输出。 • 如果输入功率电缆是三角形连接，而且输入功率电缆的电容比较大，则 可能出现接地故障误报的情况。使用参数 3023 WIRING FAULT（接线故 障）可以禁止该故障检测功能。
36	INCOMP SWTYPE 软件版本不兼 容	传动不能使用软件。 • 内部故障。 • 安装的软件与传动不兼容。 • 请与 ABB 的技术支持联系。
37	CB OVERTEMP 控制板过温	控制板温度超过 88 摄氏度。检查及纠正方法： • 周围环境温度过高 • 风扇故障 • 空气流通不畅 OMIO 板不支持此功能。
38	USER LOAD CURVE 用户自定义负 载曲线故障	用户自定义负载曲线故障。参看参数组 37 设置。
101...109	SYSTEM ERROR	传动内部故障。请与当地 ABB 办事处连联系，并提供故障代码。
201...209	SYSTEM ERROR	系统故障。请与当地 ABB 办事处联系，并提供故障代码。

换热机组常用部件

Fault Code	Fault Name In Panel	Description and Recommended Corrective Action
28	SERIAL 1 ERR	Fieldbus communication has timed out. Check for and correct: • Fault setup (3018 COMM FAULT FUNC and 3019 COMM FAULT TIME). • Communication settings (Group 51 or 53 as appropriate). • Poor connections and/or noise on line.
29		
30	FORCE TRIP	Fault trip forced by the fieldbus. See the fieldbus User’ s Manual.
31	EFB 1	Fault code reserved for the embedded fieldbus (EFB) protocol application. The meaning is protocol dependent.
32	EFB 2	
33	EFB 3	
34	MOTOR PHASE	Fault in the motor circuit. One of the motor phases is lost. Check for and correct: • Motor fault. • Motor cable fault. • Thermal relay fault (if used). • Internal fault.
35	OUTPUT WIRING	Possible power wiring error detected. When the drive is not running it monitors for an improper connection between the drive input power and the drive output. Check for and correct: • Proper input wiring – line voltage is NOT connected to drive output. • The fault can be erroneously declared if the input power is a delta grounded system and motor cable capacitance is large. This fault can be disabled using parameter 3023 WIRING FAULT.
36	INCOMP SWTYPE	The drive cannot use the software. • Internal Fault. • The loaded software is not compatible with the drive. • Call support representative.
37	CB OVERTEMP	Drive control board is overheated. The fault trip limit is 88 ° C. Check for and correct: • Excessive ambient temperature. • Fan failure. • Obstructions in the air flow. Not for drives with an OMIO control board.
38	USER LOAD CURVE	Condition defined by parameter 3701 USER LOAD C MODE has been valid longer than the time defined by 3703 USER LOAD C TIME.
101... 109	SYSTEM ERROR	Error internal to the drive. Contact your local ABB representative and report the error number.
201... 209	SYSTEM ERROR	Error in the system. Contact your local ABB representative and report the error number.

Common components of heat exchanger unit

维护

警告!在对设备进行维护前请认真阅读ABB说明书的"安全指南"一章。忽视这些安全指导将可能导致人身伤害或死亡。

Maintenance:

Warning! Read "Safety" on page 3 before performing any maintenance on the equipment. Ignoring the safety instructions can cause injury or death.

散热器

散热器会因冷却空气流过而积尘。由于散热器积尘，冷却效率会降低，就有可能发生过温故障。在正常环境（无灰尘、清洁的）下，散热器应每年检查一次，在灰尘多的环境下，散热器应经常清扫。

按如下方法清扫散热器：

1. 断开变频器的电源。
2. 拆下冷却风机（参见第209 页 " 更换主风机")。
3. 使用清洁的压缩空气（干燥的）从下向上吹扫散热器，同时使用吸尘器在空气出口处吸收灰尘。

注意：灰尘有可能进入相邻设备，应在其它房间进行清扫散热器风机。

4. 恢复冷却风机。
5. 恢复上电。

Heatsink:

The heatsink fins accumulate dust from the cooling air. Since a dusty heatsink is less

efficient at cooling the drive, overtemperature faults become more likely. In a "normal" environment (not dusty, not clean) check the heatsink annually, in a dusty

environment check more often.

Clean the heatsink as follows (when necessary):

1. Remove power from drive.
2. Remove the cooling fan (see section "Main Fan Replacement" on page 208).
3. Blow clean compressed air (not humid) from bottom to top and simultaneously use a

vacuum cleaner at the air outlet to trap the dust.

Note: If there is a risk of the dust entering adjoining equipment, perform the cleaning

in another room.

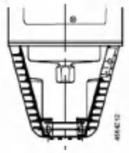
4. Reinstall the cooling fan.
5. Restore power.

换热机组常用部件

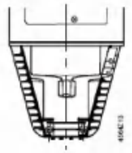
电动调节阀

调试注意事项

调试系统时，检查线缆和功能，设定辅助开关、电位计和行程限位装S或检查现存参数 设定值。



带有阀杆连接器的
圆柱筒完全收缩
→行程= 0 %



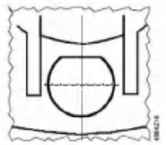
带有阀杆连接器的
圆柱筒完全伸出
→行程= 100 %

⚠ 手动调节器必须逆时针旋转到不能转动为止，这会使西门子阀门，型号WF...和VXF... 完全关闭（行程= 0%）。

自动操作

对于自动操作，手动调节把手(1)上的曲柄(2)，必须联动，如果不联动，逆时针旋转曲柄直到显示窗(3)不显示刻度(4)，也不显示曲柄联动条。

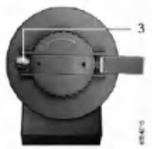
手动调节把手(1)
上的联动曲柄(2)



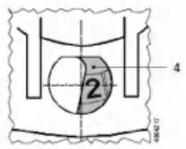
没有刻度盘和
曲柄联动条的
显示窗

手动操作

对于手动操作，回转曲柄(2)直到看见显示窗(3)，通过旋转曲柄或手动调节把手(1)，显示窗显示联动条和/或带有行程指示的刻度盘。



回转曲柄，
显示窗(3)

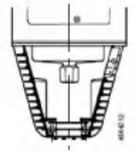


带有刻度盘(4)
和行程指示的显示窗

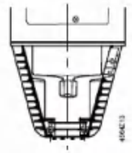
Electric control valve

Precautions for commissioning

Check the cable and functions at system commissioning. Set the auxiliary switch, potentiometer and stroke limit S or check the existing parameters.



Full shrinkage - stroke of
cylinder with stem
connector= 0 %

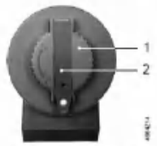


Full stretching- stroke of
cylinder with stem
connector= 100 %

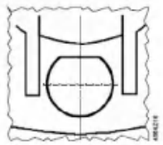
The manual regulator must be rotated counterclockwise until it can't move any longer. The Siemens valves, such as WF...and VXF...will be fully turned off (Stroke = 0%).

Automatic operation

For automatic operation, adjust the crank (2) on the regulating handle (1) to ensure linkage. In case of linkage failure, rotate the crank in counterclockwise until no scale (4) or crank linkage bar showing on the display window (3).



Linkage crank (2) on the
manual regulation of
handle (1)

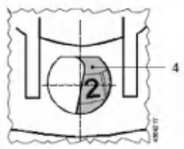


Display window without
dial and crank linkage bar

Manual operation

For manual operation, rotate the crank (2) until showing the display window (3). By rotating the crank or manually adjusting the handle (1), display the linkage bar and/or dial with stroke indication.

Rotate the crank to
show the window (3)



Display window with dial (4)
and stroke indication

Common components of heat exchanger unit

维修

当维修阀门时：

· 关闭泵和电源，关闭管路系统中的主要阀门，卸掉系统压力，让系统完全冷却下来。如果需要，拆掉电气连线。

· 阀门和执行器正确匹配时必须重新调试。

处置

执行器内包含电子和电气部件，不能当作家庭废物处置。

必须进守当地法令法规。

保证

应用中有关的技术数据（Δp_{max}，Δp_s，泄漏率，噪声和寿命）

只对西门子执行器和与之连接的《兼容性》所列的西门子阀门有效。

⚠ 在执行器于第三方阀门匹配之前，必须得到西门子楼宇科技的批准，没有批准任何保证无效。

Maintenance

In case of valve maintenance:

•Turn off the pump and power. Close the main valves of the piping system. Remove the system pressure to cool down the system completely. Remove electrical wiring if necessary.

•Commissioning shall be conducted once more if the valve and actuator are correctly matched.

Disposal

The actuator contains electronics and electrical components which cannot be disposed as household waste.

Must abide by local laws and regulations.

Guarantee

Related technical data in the application (△pmax，△ps, leakage rate, noise and life) are only effective to all Siemens valves listed to Simens actuator and the compatibility connected.

Before the actuator is matched to a third party valve, the approval of Siemens Building Technology must be obtained. The warranty is invalid if no approval is obtained.

参数设定操作

机组控制系统参数设定操作

概述

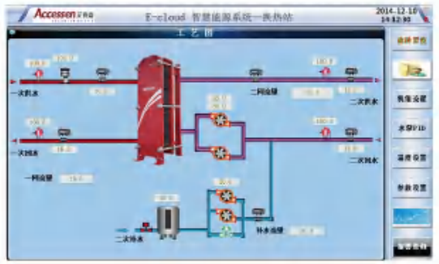
系统包括循环系统和补水系统，采用德国SIEMENS　PLC和触摸屏。PLC是系统自动运行控制单元，触摸屏是用来显示设定温度、压力数据和PID参数设定。

操作分为手动、自动两种方式；机组分为循环系统以及一个补水系统，可分别通过控制柜面板上选择开关切换以上工作方式。

手动方式时系统不对机组进行控制，机组的启停由操作人员通过控制柜面板按钮操作实现；自动方式下系统根据机组的累积运行时间分别启动一台水泵，累积运行时间最大的水泵作备用泵；远程下系统不对机组进行控制，机组启停以上位机通讯数据来控制。

参数显示

系统开机如下图显示：主界面显示整个机组的运行状态。系统各个点的温度.压力显示.电动阀及水泵，流量计的运行状态。



循环泵，补水泵压力设定，及PID及积分和比例调整如下图：

Control system parameter setting

Overview

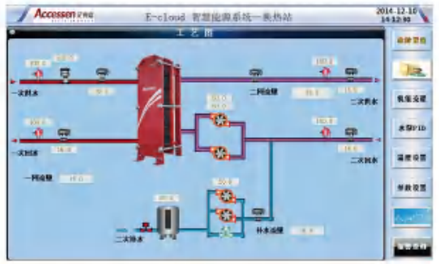
The system includes a circulatory system and water filling system, and adopts Germany SIEMENS PLC and touch screen.PLC is a system automatic operation control unit. The touch screen is used to display setting temperature, pressure data and PID parameter setting.

Operation is divided into manual and automatic mode; the unit is divided into circulatory system and water filling system, which can be switched through the option switch on the control cabinet panel.

The system will not be controlled under manual mode. Unit is to be turned on and off by the operator via buttons on the control cabinet panel; start up a water pump based on the cumulative run time of the unit under automatic mode. The water pump with the maximum running time is to be used as standby pump; the system will not be controlled under remote mode. The unit is to be controlled via communication data of the host.

Parameter display

System boot is as shown in the following figure: The main interface shows the running state of the whole unit. Temperature and pressure of each point of the system. Running state of electric valve, water pump and flow meter.



Pressure setting of circulating pump and water replenishing pump, as well as PID and integral and proportional adjustment are as follows:

Parameter setting operation

循环泵，补水泵可通过频率控制和压力设定两种控制方式。比例系数，积分时间，微分时间均为PID调节参数。

电动调节阀可同过阀位控制和温度控制两种控制方式。比例系数，积分时间，微分时间均为PID调节参数。

系统温度报警设定，系统压力报警参数设定，液位保护设定，温度传感器，压力传感器参数设定，补水阀参数设定见下图：

The circulating pump and water replenishing pump can be controlled via frequency control and pressure setting. The proportional coefficient, integral time and differential time are all PID adjustment parameters.

Electric control valve can be controlled via valve position control and temperature control. The proportional coefficient, integral time and differential time are all PID adjustment parameters.

Parameters of the system temperature alarm setting, system pressure alarm parameter setting, liquid level protection setting, temperature sensor, pressure sensor parameter setting, and water replenishing valve are as follows:

参数设定操作

设备运行前的准备工作：

1.将循环系统注满水，打开循环水泵排气塞及管道上的自动排气阀，排净管道内的空气。

2.依据电气柜铭牌标示接入电源，确保电压符合要求，使电气柜牢靠接地。

3.手动盘动电动机,应使电动机转动灵活无摩擦.否则应排除故障再开机。

操作方式：

机组操作方式分手动、停止、远程控制三种方式。

（1）、 远程运行方式：选择开关打在远程位置，机组不受本地控制，在中控控制下自动运行。

A.循环系统：

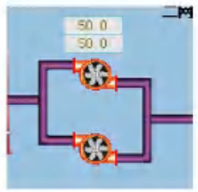
1、检查电气线路和电气设备部分，确保接线及设备正常。

2、把循环水泵出口处阀门关闭，入口处阀门打开。

3、根据需要在触摸屏上设定二网出水温度。二网出口温度，是通过出口反馈温度和我们设定温度相比较来控制一次侧进水的电动阀开度控制的；反馈温度比设定温度高，打开电动阀；反之关闭电动阀。

4、把系统循环的选择开关打到自动的位置，系统会根据每台水泵运行时间的长短，选择运行时间最大的一台水泵作为备用水泵。

5、水泵的起停可通过触摸屏按钮启动。如图：



待泵启动后，慢慢打开每套机组水泵出口的阀门，使循环系统内的水循环运行正常。

6、缓慢打开一次侧进水管道上的阀门，使水进入换热器同时注意观察系统压力变化变化，避免超压情况出现。需求压力设定值由触摸屏内设定

7、逐步打开换热器下方出水阀门，使一次侧回水顺利流回。

Preparation before equipment operation:

1. Fill the circulatory system with water; open the pump exhaust plugs and the automatic exhaust valve on the pipe to discharge the air in the pipeline.

2. Power on according to the electric gas cabinet nameplate to make sure that the voltage meets the requirements, and firm grounding of electrical cabinet.

3. Operate the motor manually to make the motor rotate freely without friction. Otherwise, start up the machine after troubleshooting.

Operation modes:

The unit operation modes include manual, stop and remote control.

(1) Remote operation mode: Turn the option switch to the remote location. The unit is not controlled by the local control and operates automatically under the control of the central control.

A. Circulatory system:

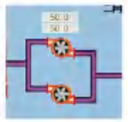
1. Check electrical wiring and electrical equipment to ensure normal wiring and equipment.

2. Turn off the valve at the outlet of the circulating pump and turn on the valve at the inlet.

3. Set the secondary network outlet temperature according to the setting on the touchscreen. The secondary network outlet temperature is to be controlled via the electrically operated valve; the feedback temperature is higher than the set temperature, open the electric valve; turn off the electric valve.

4. Turn the option switch of the systemic circulation to the automatic location. The system will select the water pump with the maximum running time as the standby pump.

5. The starting and stopping of the pump can be controlled via the buttons on the touch-screen. As shown in the figure:



After starting up the pump, slowly turn on the valves at the outlet of the water pump outlet of each set of unit so that the water circulation in the circulation system can run normally.

6. Slowly turn on the valves on the primary water inlet pipeline to make the water flow to the heat exchanger. Observe the changes of pressure to avoid overpressure. The pressure setting value is set on the touch screen.

7. Gradually turn on the outlet water valves at the bottom of the heat exchanger to make the water flow at the primary side back smoothly.

Parameter setting operation

8、在运行状态下，如果一台水泵出现故障，系统将停止运行该机组且切换到另一套备用机组运行且发出报警信号。如果故障点未解除，该机组无法进行复位。

9、只有报警信号解除按复位键复位后，报警机组才可在其他机组故障时自动投入运行。

B.补水系统：

1、打开补水侧水泵进出口阀门。将选择开关打在远程位置，系统自动投入自动运。

2、当回水压力低于补水压差启动设定值（由触摸屏设定）时，补水泵启动补水。补水压力根据补水压力设定通过PID运算的输出做出动作。补水泵有压力控制和频率控制两种方式。

3、当一台水泵出现故障时另一台水泵投入运行，并发出报警信号。

(2)、手动方式：

把系统的选择开关打至“手动”位置，通过控制柜上的相应的按钮来启停相应的水泵，控制面板上的指示灯将显示运行泵的状态。

8. Under the running state, in case of water pump failure, the system will stop running. The unit will be switched to another set of standby units for operation and alarm signal. If the failure is not eliminated, the unit cannot be reset.

9. Only after eliminating the alarm signal and after pressing the reset key, the alarm unit can be automatically put into operation in case of unit failure of other units.

B. Water replenishing system:

1. Turn on the valves at the water pump outlet of water replenishing side. Turn the option switch to remote location and the system will be put into automatic operation.

2. When the backwater pressure is lower than the setting value of water replenishing pressure difference (setting by the touch screen), the water pump will be started to fill water. The water replenishing pressure is to be set according to replenishing pressure, and will work according to the output PID calculation. Water replenishing pump has two modes, i.e. pressure control and frequency control.

3. In case of failure of one water pump, the other will be put into operation, and send out alarm signal.

(2) Manual mode:

Set the option switch of the system to “manual” position. Start up and close down corresponding pumps via corresponding buttons on the cabinet. The indication lights on the control panel will show the running pump state.

订购备件

ordering spare parts

订购备件手续

在订购备件时，请指明板式换热机组的型号和系列号，这些都标明在固定压紧板上的产品铭牌上。

订购时进行设备使用信息注册，注册后能在艾克森系统里面有完整的设备档案，以便后期能够快速的提供备件服务，以优惠价格购买原厂高品质的备件，扫描下方二维码联系。

Instructions for ordering spare parts

While purchasing spare parts, please specify the type and serial number of the plate type heat transfer unit which should be listed on the product nameplate of the fixed compaction plate.

Equipment operation information shall be registered at purchasing. Intact equipment file is kept in Accessen system to provide rapid spare parts services. To purchase high-quality spare parts at a preferential price, scan the qr code below to contact relevant personnel.