AURA
PROCESS HEAT


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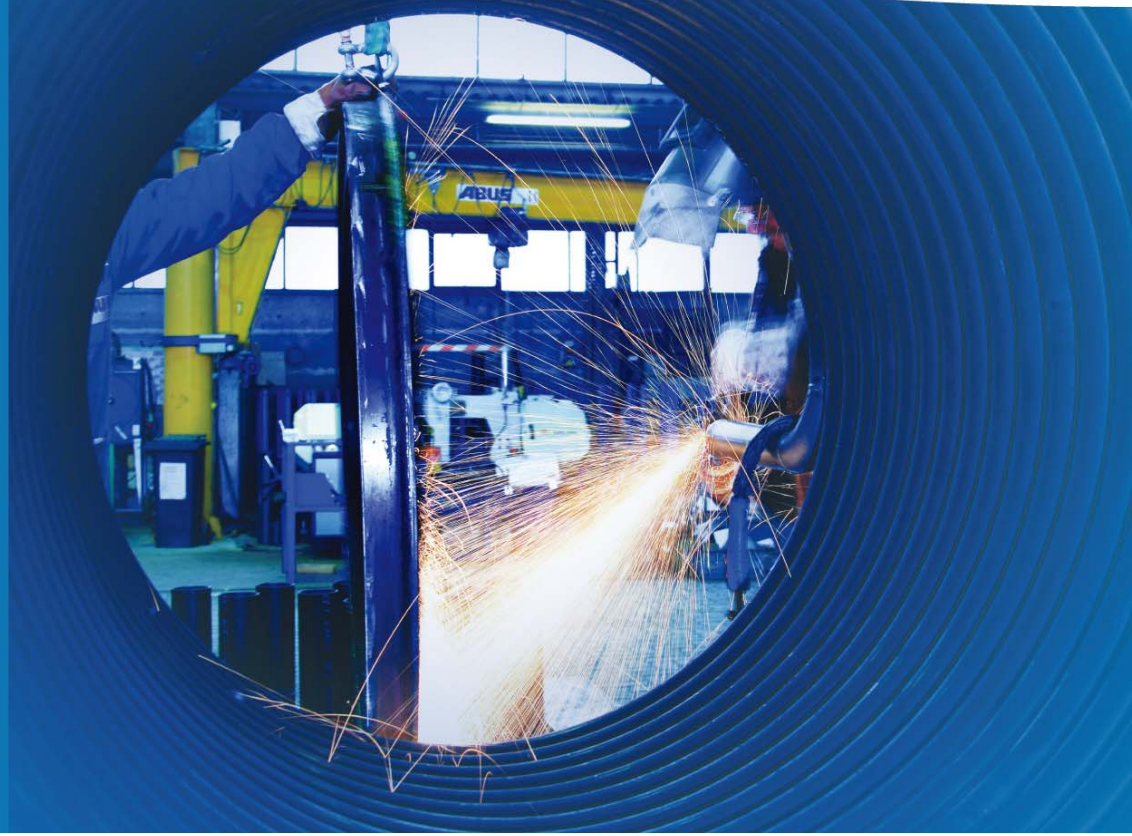
AURA
PROCESS HEAT

| | |
|---|---|
| THERMAL OIL SYSTEMS | 导热油系统 |
| WATER BATH HEATERS | 水浴炉 |
| HOT WATER BOILERS | 热水炉 |
| SECONDARY CIRCUITS | 二次循环单元 |
| HEAT EXCHANGERS | 换热器 |
| ENGINEERING | 工程 |
| SERVICE & SPARE PARTS | 服务与备件 |



# About us 关于我们

AURA is a medium sized company focused on heat medium systems for industrial processes. Located in Germersheim, Germany and founded in 1982 we are skilled and experienced in serving for various industries all over the world.
Due to our total commitment in improvement of performance at all of our working-places, AURA is one of the leading companies in the field of heating, cooling and process temperature control. Using the latest technologies and procedures in manufacturing, office-management and design. It is our passion to provide excellent tailor-made heating and cooling solutions of highest quality based on standardized units for both offshore and onshore projects.

**AURA Philosophy**

- **Educational Upgrading** of our entire staff due to training and providing up-to-date tools.
- **Encourage to Outperform** and benefit solutions by the management and the board.
- **Social Responsibility** inside and outside the **AURA-Community**.
- **International Orientation** As an international acting company we believe that globalization is essential to economic development and successful cooperation.
- **Respect of any Human Being** at any time no matter which culture, skin or education.
- **Innovation is the Key to Success.** Besides using advanced technologies of our suppliers, such as latest software tools, and supporting our suppliers' development projects, we are also developing our own software for calculation and design.
- **Satisfied Clients** are the most valuable and highest reference we enjoy. We are proud of our products and of our successful contribution to our clients projects.
- **Long Time Relationship** AURA is seeking long time relationship with our clients, suppliers and service providers based on understanding of partnership and in order to achieve stable and mutual benefit.

德国AURA（奥尤）公司成立于1982年，位于德国盖摩斯海姆市；是一家致力于工业加热系统的中型专业化公司，我们在全球各个行业积累了丰富的经验和技术。
随着公司多年的努力与发展，我们已经成为在加热、冷却和工艺温度控制行业内的领导企业。在制造、管理和设计方面，采用最新的技术和流程；除了能提供标准的产品外，我们还能根据客户的实际需求，为海上和陆地项目量身定制高品质的加热和冷却系统的解决方案。

**公司宗旨**

- 通过培训和采用先进工具，提升公司员工的整体教育和技术水平。
- 管理层出台奖励方案，激励公司有突出贡献者。
- 奥尤公司内部和外部的社会责任感。
- 作为一个国际化的公司，我们坚信全球化是经济发展与和平合作的关键所在。
- 尊重所有个体，无论其文化、肤色或者教育背景。
- 创新是成功之本：吸收供应商的先进技术、支持供应商的开发项目、开发自有的计算和设计软件。
- 让客户满意是我们最大价值和最高荣誉所在。我们为自己的产品能对客户做出杰出贡献而感到非常骄傲。
- 长期合作关系：在相互理解的基础上，我们寻求与客户、供应商及服务提供商的长期合作，实现各方互惠互利。

# Applications 应用

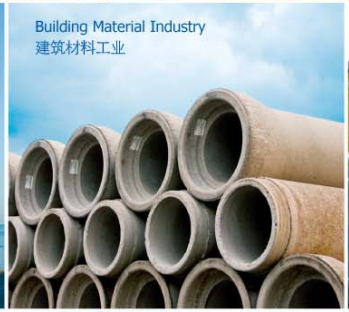

Oil and Gas Industry
石油天然气工业


Petro-chemical Industry
石油化学工业


Paper & Cardboard Industry
造纸和纸加工工业

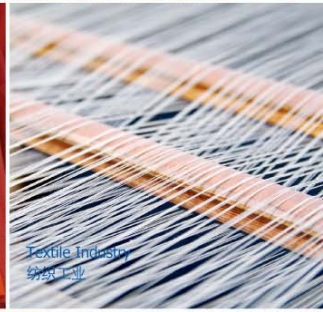

Wood Processing Industry
木材加工工业


Oil Industry（Offshore FPSO）
原油工业（海上FPSO）


Building Material Industry
建筑材料工业


Bitumen & Tar Industry
沥青和焦油工业


Plastic & Rubber Industry
塑料和橡胶工业


Textile Industry
纺织工业


Machine Manufacturing Industry
机械加工工业

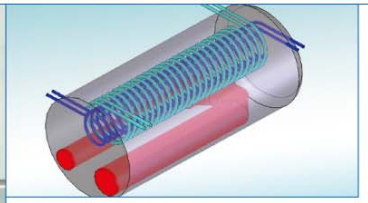

Chemical Industry
化学工业


Nonwoven Industry
无纺布工业


Metal Processing Industry
金属加工


Food Processing Industry
食品加工工业

# Competence 实力



- **All-round design solution for complete systems**
  **整套系统全面解决方案**

  Concept Brainstorming based on sucessful long-term engineering experience in order to prepare the most suitable technical concept and most economic commercial proposal.
  开创性的理念：基于长期的成功工程经验，提供最合理的技术方案和最经济的商务建议。
  Our design department provides 3D-design and engineering drawings, calculates and simulates fluid stream inside heater, using special software to guarantee the safety of system.
  我们拥有强大的设计中心，可对系统进行3D设计并可提供工程图纸，另外在热工计算方面，可利用专业软件，对内部进行流体仿真计算，完全保证加热系统的安全性。

  » **Thermal Calculation** at its best is supported by using up-to-date software tools. Furthermore, our own tools are developed, founded on the advances of the in-house research and development.
  **热工计算**：采用最先进的软件工具，并且公司内部研究与开发专用的软件工具。

  » **3D-Design** with highest performance based on SOLID WORKS and upgraded by our own designer and linked with our commercial management database.
  **3D设计**：SOLID WORKS软件被设计人员充分发挥其出色性能，并被链接到公司管理数据库。

  Manufacture Using the smartest technologies and procedures for Bending, Cutting, Welding, NDT, Wiring, Configure, Adjust, Simulation, Testing.
  制造：采用最智能的技术和工艺进行弯曲、切割、焊接、非破坏性试验、布线、配置、调节、模拟和测试。
  Control and Interface Automation- and Control-Design for a safe and smooth operation and monitoring.
  控制和界面：为安全稳定运行和监测配备自动化控制设计。

- **Turnkey supply for full responsibility of project**
  **交钥匙供货及项目全程负责**

- **Highest standards & quality control 高标准及质量控制**

  AURA is holder of all national and international quality certificates and approvals for offshore. Highest quality standards in design and manufacturing acc. to DIN4754, VDI3033, TUV, AD2000; as well as quality control and certified quality management systems (ASME).
  奥尤公司通过了德国国内和国际质量管理体系的各项认证。同时设计、制造及检验完全遵循高标准，比如DIN4754,VDI3033, TUV,AD2000；整体质量管理按ASME质量管理系统执行。

- **Highest reliability and safety for all kinds of application**
  **适合所有工况的高安全性和可靠性**

  To guarantee a long lifetime of the system even under such extreme conditions as marine or desert conditions, safe and durable systems are designed strictly according to customer's request.
  根据客户要求设计和制造高质量、高可靠性的系统，适用于各种恶劣工况，比如沙漠、海洋等工况，并提供特殊设计和制造来保证整个系统的长期稳定运行。

- **Module design and delivery in skids 模块化设计，橇装化供货**

  All components are easily accessible, mounted to a steel skid, pipe-connected and quality-checked. The electrical devices are connected, configured, and performance-checked. The connection points to the on-site equipment are also easily accessible, and the connections can be made without effort. Safety and short assembly time are ensured by electrical wiring and complete quality checks in the workshop.
  所有部件易于操作并与管线预先安装在钢结构橇座上，出厂前进行检验。所有橇内电气及电缆都在出厂前进行连接、参数配置及性能测试，这样可以保证系统的安全性和安装的快捷。出于运输的原因，大型橇块将被分成几大部分运输，到现场进行组装；这样可以保证系统在现场安装和连接的便利性。

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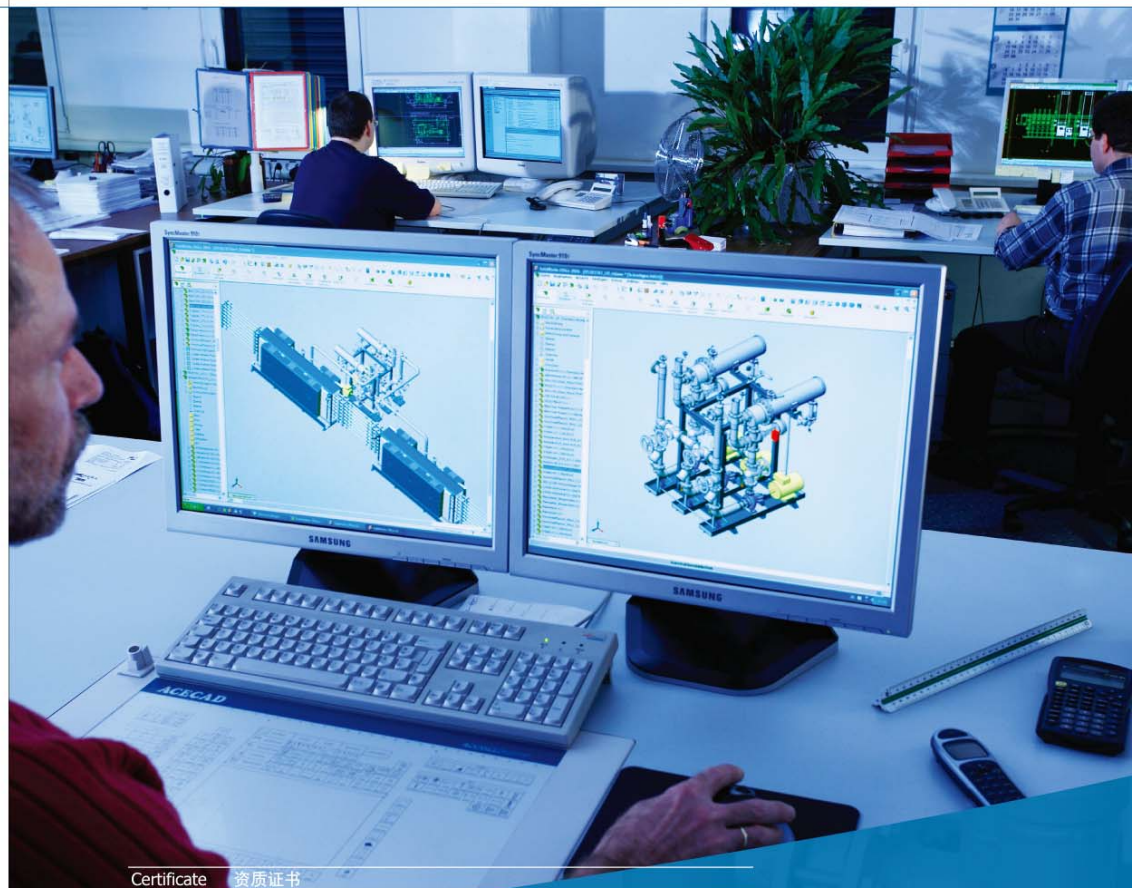
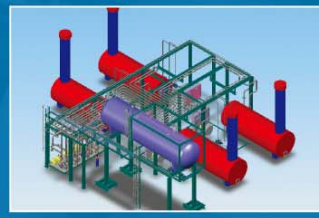



| Certificate 资质证书 | |
|---|---|
| Authority,Country<br>授权机构，国家 | Certificate<br>证书 |
| TUEV, Deutschland/Germany | HP0, TRR100, TRD201, EN729-2 |
| TUEV, Deutschland/Germany | Stahlbauten nach DIN 18800-7:2002-09, Klasse E (Großer Eignungsnachweis dyn.) |
| TUEV, Deutschland/Germany | Fachbetrieb nach § 19 I (WHG) |
| SVTI, Schweiz/Switzerland | SVTI-KIS.VZ.5200134 |
| ASME, U.S.A. | U-Stamp #26,069 |
| ASME, U.S.A. | S-Stamp #26,068 |
| National Board, U.S.A. | S & U |
| AQSIQ, China | Manufacture License TS2100027-2009 (Boiler)<br>TS2200027-2009 (Pressure Vessel) |
| GOST R, Russland | POCC DE.AE56.B05268 |
| GOST R, Russland | POCC DE.AE56.B05269 |
| BV (Bureau Veritas) | Ships & Offshore Installations, SMS.W.II / 26826 / A.0 |
| BV (Bureau Veritas) | Druckgeräterichtlinie 97/23/EG, PED 97/23/EC – Modul H<br>No.: CE-PED-H-AUR 007-04-DEU<br>No.: CE-PED-H-AUR 008-04-DEU |
| DNV (Det Norske Veritas) | Ships & Mobile Offshore Units T-1077 |






## Main product range:
## 主要产品：

- Thermal Oil Systems 导热油系统
  Fluid thermal oil heating systems
  (The highest temperature: 380℃ / 720°F)
  立式、卧式液相导热油系统（最高温度380℃ / 720°F）

  Vapor thermal oil heating systems
  (The highest temperature: 400℃ / 750°F)
  立式、卧式气相VP-1导热油系统（最高温度400℃ / 750°F）

  Waste heat recovery units for thermal oil
  (The highest temperature: 350℃ / 660°F)
  余热回收导热油系统（最高温度350℃ / 660°F）

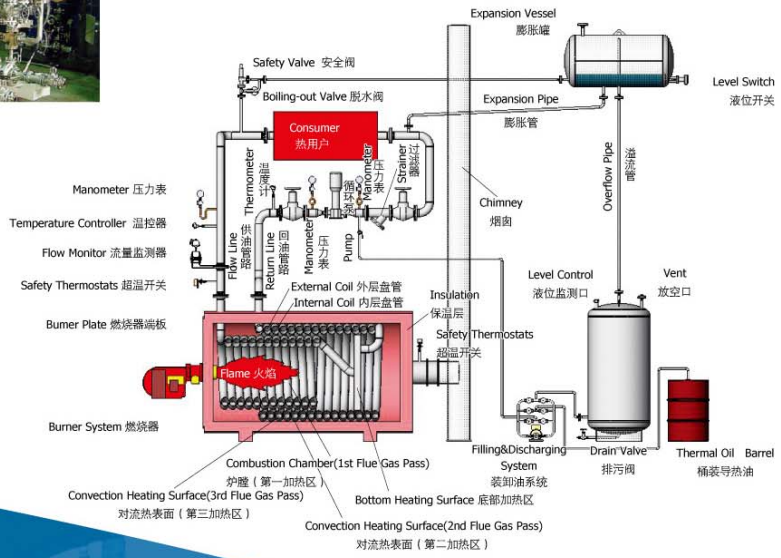
  Electric thermal oil heating systems
  电加热导热油系统

- Water Bath Heaters 水浴炉
- Hot Water Boilers 热水炉
- Secondary Circuit Packages 二次循环撬块
- Heat-exchanger and Pressure Vessels 热交换设备以及压力容器





Overall Diagram for AURA Thermal Oil System (Fluid)
AURA导热油加热系统流程（液相）




## THERMAL OIL SYSTEMS 导热油系统

### Why Using Thermal Oil as Heat Transfer Medium?
### 为什么要使用导热油作为传热介质?

Water and steam are typically used as heat transfer medium in heating systems. But at high temperatures, water and steam require a corresponding high operating pressure. In industrial heating systems, a high temperature level is often of a great advantage, and establishing this with water and steam can be very controversial and expensive.
在加热系统中，通常以水和蒸汽作为加热介质。在工业加热系统中，高温是一个很大的优点，而水和蒸汽在高温下需要更高的运行压力。因此在工业加热系统中，采用水和蒸汽实现高温应用是富有争议和非常昂贵的。

In thermal oil heaters, special oil is used instead as a heat carrier instead, operating at atmospheric pressure up to 300°C / 570°F. Compared to water and steam, it would require a pressure of 85bar (1230psi) to reach this temperature.
在导热油加热炉中，特殊的导热油被用来作为传热介质，其温度在常压下可以达到300℃ / 570°F。同样情况下采用水和蒸汽，想实现此温度，其压力需要达到85bar（1230psi）。

There are several advantages of using thermal oil compared to e.g. steam systems. The most obvious are:
导热油系统有很多优点，主要有以下方面：

- High temperatures of up to 300°C / 570°F at positive pressure
  微正压下可达到300°C / 570°F的高温
- Optional temperature level set-points
  可提供不同温度段的热源
- No equipment for pre-treatment of boiler feed water
  不需要对供给水进行预处理
- No heat loss due to hot condensate and flash steam
  在热传导过程中几乎没有热损失
- No risk of corrosion and no risk of freezing damages
  对系统无腐蚀和冰冻风险
- Low maintenance costs 低维护费用
- Low noise in operation 低运行噪音
- Easy to operate 操作简单

THERMAL OIL SYSTEMS 导热油系统

## FIRED THERMAL OIL HEATERS (FLUID AND VAPOR)
## 导热油加热炉（液相和气相）

**Type 型号:**
AKL (Horizontal) 卧式 / AKS (Vertical) 立式

**Power range 负荷范围:**
100 kW (0.3 MBtu/h) to 25000 kW (85 MBtu/h)

**Fuel 燃料:**
Natural gas, LPG, process gases, light fuel oil (diesel), heavy oil, crude oil;
天然气，LPG，工艺气体，轻油（柴油），重油，原油。

**Supply line temperature 供给温度:**
Max. up to 380°C / 720°F 最大到380°C / 720°F
(Max. up to 400°C / 750°F with suitable heat transfer medium or vapor如使用合适的传热介质或热油蒸汽，最大可到400°C / 750°F)

All products by AURA are thermodynamically optimized, and characterized by high efficiency and excellent heat transfer to the thermal oil.
所有的AURA产品设计计算都经过内部优化来保证高效率和完美的导热油传热。

The major quality feature is that thermal oil runs through the boiler rear wall, and simultaneously cools it. Thus, a very long durability is achieved, because the temperature differences, which emerge due to a frequent start and shut-off of the burner flame, do not have any negative effects on the boiler rear wall. This is contrary to boilers with concrete rear walls, where the material cracks in the course of time, and has to be renewed. AURA boilers do not require any renewal. Boilers with concrete rear walls have the disadvantage of storing a lot of high-temperature heat. If the circulation pump stops, for instance during power failures, the heat is transmitted to the thermal oil, which will cause a safety hazard of overheating and cracking.

主要的技术特点是采用了底部加热区。由于AURA特有的底部加热区，频繁启动和熄灭火焰引起的温度应力不会对其造成危害，因此保证了长期耐用性能。相反地，如采用普通的底部加热区，其材料会随着时间而破坏，不得不进行翻新。而AURA公司的导热油炉完全是免维护的。由于炉内没有聚热材料，因此不会因为紧急断电、循环泵停止而造成局部导热油过热结焦，大大延长了炉体盘管的使用寿命。

Particularly noteworthy is the special design of the coil inside the heater, ensuring thermal expansion with low stress.
另一个值得注意的是此种特殊设计可以确保消除炉内膨胀应力。






Overall Diagram for AURA Waste Heat Recovery Unit
AURA余热回收系统流程

## WASTE HEAT RECOVERY UNITS (WHRU)
## 余热回收装置

**Type 型号:** WHRU

**Power range 负荷范围:**
100 kW (0.3 MBtu/h) to 25000 kW (85 MBtu/h)

**Heat Source 热源:**
Higher temperature exhaust gas from turbine, incinerator and power engine;
来自透平、电站或发电机的高温尾气;

**Supply line temperature 供给温度:**
Max. up to 350°C / 660°F 最大到350°C / 660°F
(Depends on exhaust gas temperature, 与尾气温度有关)

Turbines or engines often produce exhaust gas at very high temperatures, which contains a large amount of heat. Using WHRU, the temperature of exhaust gas can be considerably reduced, thermal oil can be heated, and then used for production as a heat transfer medium for all kinds of application.
来自透平或发电机的尾气含有大量的热量，通过余热回收装置，可以将导热油加热，尾气温度降低，进而将导热油作为热源用在各种生产领域。

Supplementary, a burner is used to fire diesel or natural gas combined with exhaust gas in case of lack of heat in exhaust gas.
如果尾气热量不足，可以采用补燃燃烧器来提供额外的热量。此燃烧器使用尾气做配风，用柴油或天然气做燃料。

## ELECTRIC THERMAL OIL HEATERS
## 导热油电加热器

**Power range 负荷范围:**
20 kW (0.07 MBtu/h) to 3000kW (10 MBtu/h)

**Supply line temperature 供给温度:**
Max. up to 350°C / 660°F 最大到350° C / 660° F
( Max. up to 400°C / 750°F with suitable heat transfer medium or vapor 如使用合适的传热介质或热油蒸汽，最大可到400° C / 750° F )

No boiler installation, no emissions, no need to follow boiler regulations and authorization for operation;
无锅炉安装要求，无排放，无相关锅炉规范和操作约束；

Gentle heating of thermal oil, using heating elements which are designed for low surface load;
通过加热棒对导热油进行温和加热，单位加热负荷小；

The service life of thermal oil can be prolonged by the means of advanced film temperature control;
通过先进的膜温控制，导热油可以获得长久的使用寿命；

Relatively smaller space required for installation and operation;
相对较小的安装和操作空间；

Electric plug-in heating element, easily for maintenance;
插入式电加热棒，方便维护；

Pre-heat temperature available in two, three or multi-step increments;
通过电子控制可采用多级预加热;

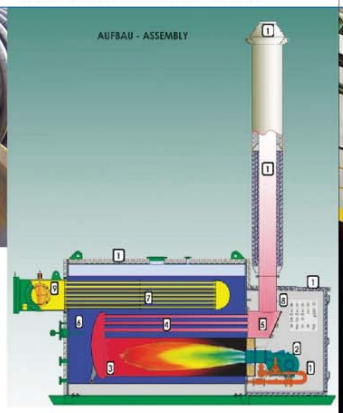
Safety equipment conforms to DIN 4754, VDI3033, VDE 0100, accident prevention regulations, EN 292.
安全配置遵照DIN4754，VDI3033,VDE0100，以及EN292 ( 防止事故规范 ) 。



## SYSTEM AUXILIARY EQUIPMENTS
## 系统附属设备

A wide range of accessories allows you to complete and optimize the operational requirements of your application:
大量的附属设备可以用来完善和优化系统：

- Combustion pre-heaters to raise the efficiency of the heater to over 92%;
  空气预热器可使热效率达到92%以上;
- Expansion tank with integrated instruments device;
  带集成仪表电气设备的膨胀罐；
- Collection tank; 储油罐；
- Nitrogen cover system; 氮气覆盖系统；
- Circulation pump and valve group; 循环泵及其阀组；
- Fully automatic control system; 全自动控制系统；
- Flow control for multi-consumers; 多用户流量控制；
- Filling and discharging unit; 注油和泄放单元；
- Secondary circulation unit for different temperature requirements;
  针对不同温度需要的二次循环单元；
- Automatic inert gas extinguishing system; 自动气体灭火装置；
- Silencer ( For WHRU ) . 消音器 ( 用于余热回收装置 ) 。




## WATER BATH HEATERS
## 水浴炉

**Power range 负荷范围:**
100 kW (0.3 MBtu/h) to 10000 kW (34 MBtu/h)

**Fuel 燃料:**
Natural gas, LPG, process gases, light fuel oil (diesel), heavy oil, crude oil;
天然气，LPG，工艺气体，轻油（柴油），重油，原油。

AURA water bath heaters are fully automatic, directly heated devices that have been specifically designed for heating natural gas and crude oil through higher pressure section.
AURA的水浴炉可以实现全自动控制，通过高压部件直接对天然气和原油进行加热；

If injector burners are used, no separate power supply is needed for the operation;
采用自喷射式燃烧器，无需额外电源即可运行；

If forced-air burners are used, a suitable electric power supply must be provided;
采用强制通风燃烧器，需要额外的电源提供动力；

As for natural gas, the purpose of AURA water bath heaters is to preheat the natural gas before expansion in a pressure reducing station, thus preventing the gas temperature from falling below the freezing point.
对于天然气，为了防止其在减压过程中温度下降至冰点，需要采用水浴炉对其进行加热；

AURA water bath heaters are of weatherproof design suitable for outdoor installation.
AURA水浴炉采用户外设计，全天候防护。

**Operating principle 工作原理**

The water inside a horizontal vessel is heated by fired burner through burning channel, and the natural gas or crude oil in tube bundle or high pressure coil are heated by hot water.
燃烧器燃烧后通过燃烧道加热水平容器内部的水，然后利用放置在水中的高压盘管或管束加热其中的天然气或原油。

The pressurized water vessel, where water can be even heated beyond the 100°C / 210°F mark, makes it possible to achieve a compact-sized heater design.
通过给容器中的水加压，可以将水温加热超过100°C / 210°F，以此来获得更紧凑的加热炉。





## HOT WATER BOILERS
## 热水炉

**Power range 负荷范围:**
100 kW (0.3 MBtu/h) to 25000 kW (85 MBtu/h)

**Fuel 燃料:**
Natural gas, LPG, process gases, light fuel oil (diesel), heavy oil, crude oil;
天然气，LPG，工艺气体，轻油（柴油），重油，原油。

**Supply line temperature 供给温度:**
Max. up to 200°C / 390°F 最大到200°C / 390°F

## SECONDARY CIRCUITS
## 二次循环单元

## HEAT-EXCHANGERS AND PRESSURE VESSELS
## 热交换设备以及压力容器

Process temperature control skids for any medium (e.g. thermal oil, steam, glycol) provide highly accurate temperature control with tolerances about +/- 1°C (1.8°F). The customer may require a complete heating and cooling system (with water, chilled water, air or other media) for multiple consumers to be connected to a single heating system, Secondary circuit units can be supplied completely skid-mounted to exactly meet process application requirements.

导热油、蒸汽、乙二醇以及其它工艺控制回路可以提供高达 +/–1° C（1.8° F）的温度控制精度。客户可能需要针对多用户的加热和冷却装置（水、冷却水、空气或者其它介质），二次循环橇块可以精确的达到工艺装置的要求。

AURA also provides all kinds of heat exchangers and pressure vessels for a wide range of applications.
AURA针对这个系统还提供各类换热器及压力容器。






We implement efficient and adequate solutions for your particular heating tasks under consideration of your production needs and local conditions. An innovative team of engineer's designs, calculates and builds your systems:
我们为您的加热任务提供经济合理的解决方案，该方案将会充分考虑生产要求和当地实际情况。由工程师组成的富有创新精神的团队将会完成您的设计、计算和安装：

- Draft and detailed planning of heating systems for various production processes
  针对各种不同生产工艺的加热系统草图及详细图纸
- System optimization and modernization of installations (depending on manufacturer)
  最优化和现代化的安装（取决于制造商）
- Skilled service team providing measurable improvement to your existing system, maintaining the safety, performance and the lifetime of your production
  专业的服务队伍对客户现有系统的安全运行、性能及使用寿命提供显著的改进和提升
- Operation relevant consulting services pertaining to the solution of heating "problems"
  针对加热问题解决方案的切实可行的咨询服务
- Safety concepts based on respective regulations and insurance requirements
  基于相关规范和保险公司要求的安全理念
- Your partner in business and service
  客户的伙伴及服务提供者
  Global player and expert for all-round projects
  团队合作和针对各种情况的项目专家
- Erection supervision and commissioning
  设备的现场安装监督和调试
- After sales service provides our clients all over the world with the mainly urgently required spare parts and technical support
  为全球的客户提供售后服务，如备件产品和技术支持

Our field engineering department provides specialists for plant erection supervision. Thus, the experience we have gained worldwide is also applied where it matters most on-site. If required, AURA engineers start up the plant, and ensure that the customer's operating personnel is familiar with the system. Operator training can also be given at any time on high temperature heating systems.

我们的工程安装部门派遣专家监管车间生产和现场安装。通过这种方式，我们在世界范围内积累的丰富经验被成功用于处理现场碰到的问题。如有必要，奥尤公司的工程师将会提供培训以确保客户的操作人员完全熟悉系统。在我公司的高温加热系统方面，我们也会随时对操作人员进行培训。

AURA is a service-oriented business partner of high reliability in terms of quality. Our after-sales service is one of the keys to our success, and is highly appreciated by our customers. It will be our pleasure to provide you with an adequate solution on whatever subject.

德国奥尤公司是一家对产品质量高度负责的服务导向型公司。我们的售后服务是成功的一个重要因素，并得到客户的高度认可。我们非常乐意为您提供针对任何项目的妥善解决方案。

# References 业绩

3x12000kW (3x41 MBtu/h) (Gas fired)
CNOOC Indonesia Sumatra Gas Field
中国海洋石油CNOOC 印尼SUMATRA气田

4x10000kW (4x34 MBtu/h) (Diesel, Crude Oil and Gas Fired)
CNOOC QHD326 FPSO
中国海洋石油CNOOC 秦皇岛326FPSO

12000kW (41 MBtu/h) (Heavy Oil fired)
Shanghai Petro-chemical, Polyester Production
上海石化聚酯生产

2x3000kW (2x10 MBtu/h) (Diesel Oil, Gas fired)
SINOPEC Yanshan Petro-chemical
中国石化燕山石化

2x6100kW (2x21 MBtu/h) (Gas fired)
CNPC (International) Sudan Fula Oil Field
中国石油苏丹国际FULA油田

3x5000kW (3x17 MBtu/h) (WHRU)
CNOOC LVDA Oil & Gas Field (Offshore)
中国海洋石油CNOOC 旅大油田（海上平台）

2x4x13200kW (2x4x45 MBtu/h) (Diesel oil & Crude oil fired)
PDOC Sudan Block3-7
PDOC苏丹3-7区

2x6700kW (2x23 MBtu/h) (Gas fired)
CNPC Kela 2 Gas Field
中国石油克拉2气田

3x3300kW (3x11 MBtu/h) (Gas fired)
CNOOC Chunxiao Gas Field (Offshore)
中国海洋石油CNOOC春晓气田（海上平台）

3x6000kW (3x20 MBtu/h) (WHRU)
CNOOC BZ28-2 Oil & Gas Field (Offshore)
中国海洋石油CNOOC 渤中28-2油田（海上平台）

3x5000kW (3x17 MBtu/h) (Gas,diesel oil & crude oil fired)
CNOOC Nanbao Offshore Oil Field
中国海洋石油CNOOC南堡油田（海上平台）

Our Famous Clients 我们的著名客户：

中国石油天然气集团公司 CHINA NATIONAL PETROLEUM CORPORATION
中国海洋石油总公司 CHINA NATIONAL OFFSHORE OIL CORP
Technip
SANWEI 山西三维集团
中国石油化工集团公司 CHINA PETROCHEMICAL CORPORATION
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燕山石化
ASHLAND
VOITH
CH2MHILL
metso
PDOC