昶　艾
CHANG-AI

昶艾·气体分析专家

Chang Ai · Gas Analyzers Specialist

上海昶艾科技发展有限公司（总部）
Shanghai Chang Ai Technology & Development Co.,Ltd
地址：上海市闵行区新龙路1333弄七宝万科国际中心11幢97号
电话：021-51692285
传真：021-33275656
成都昶艾电子科技有限公司（生产基地）
地址：成都市成华区龙潭总部经济城华冠路199号
传真：028-83277736

全国统一服务热线：400 700 8817
欲了解更多详情，请登陆 www.ci-ele.com 网站查询
本册版本为CI.1.22，资料仅供参考，如遇更改恕不另行通知

扫一扫 关注昶艾
昶艾·气体分析专家

昶　艾
CHANG-AI

工业过程分析系统

Industrial process analysis system

昶艾科技
产品‖方案制定‖技术支持

INNOVATION——

创新——

MAKES EVERYTHING POSSIBLE

让未来充满无限可能

OUR BRAND 我们的品牌

"昶艾"于2004年12月创立至今，主要从事传感器及其二次仪器仪表、系统工程的研制、开发和生产，是一家以科技人员为主体的科技型仪器仪表制造商。全国气体标准化技术委员会委员，全国半导体设备和材料标准化技术委员会气体分技术委员会委员，中国工业气体协会气体分析技术与仪器设备专业委员会副主任委员单位。

公司严格按照ISO9001国际标准质量体系设计、开发、生产、安装和服务的质量保证规模式进行管理。拥有多项发明专利、实用新型及外观专利技术，先后承担过国家创新基金、重点新产品计划、火炬计划、成果转化等多项国家和上海市的科技项目。2014年成为《气体中微量氧的测定电化学法》国家标准牵头起草单位，确立了"昶艾"在分析行业内的重要地位。

致力于业界前沿的各种分析检测技术研究与应用开发，拥有有8大系列100多个品种，产品应用于环保、冶金、石化、化工、能源、食品、农业、交通、水利、建筑、制药、酿造、航空及科学研究等众多行业，并出口到德、美、英、韩、印度、俄罗斯等二十多个国家和地区。

面对当今电子科技的日新月异和市场经济的纵深发展，将以"努力振兴中国工控事业，争创国际知名工控品牌"为目标，以人为本励精图治，进一步加强内部的软硬件建设，充分发挥公司多年来在工业检测和自动化领域积累的经验，不断开拓，为每一位用户提供物超所值的产品和服务，努力为我国的现代化建设作出贡献!

"Chang Ai" was founded in December 2004, and is mainly engaged in the research, development and production of sensors and secondary instruments and systems engineering. It is a scientific and technological instrument manufacturer with scientific and technological personnel as the main body. Member of the National Gas Standardization Technical Committee, member of the Gas Sub-Technical Committee of the National Semiconductor Equipment and Material Standardization Technical Committee, and vice chairman of the Gas Analysis Technology and Instrumentation Professional Committee of the China Industrial Gas Association.

The company conducts management in strict accordance with the ISO9001 international standard quality system design, development, production, installation and service quality assurance scale. With a number of invention patents, utility models and appearance patented technologies, Chang Ai has undertaken a number of national and Shanghai science and technology projects such as the national innovation fund, key new product plans, torch project, and achievement transformation etc. In 2014, Chang Ai became the leading drafting unit of the national standard for the "Electrochemical Method for the Determination of Trace Oxygen in Gases", establishing the important position of "Chang Ai" in the analysis industry.

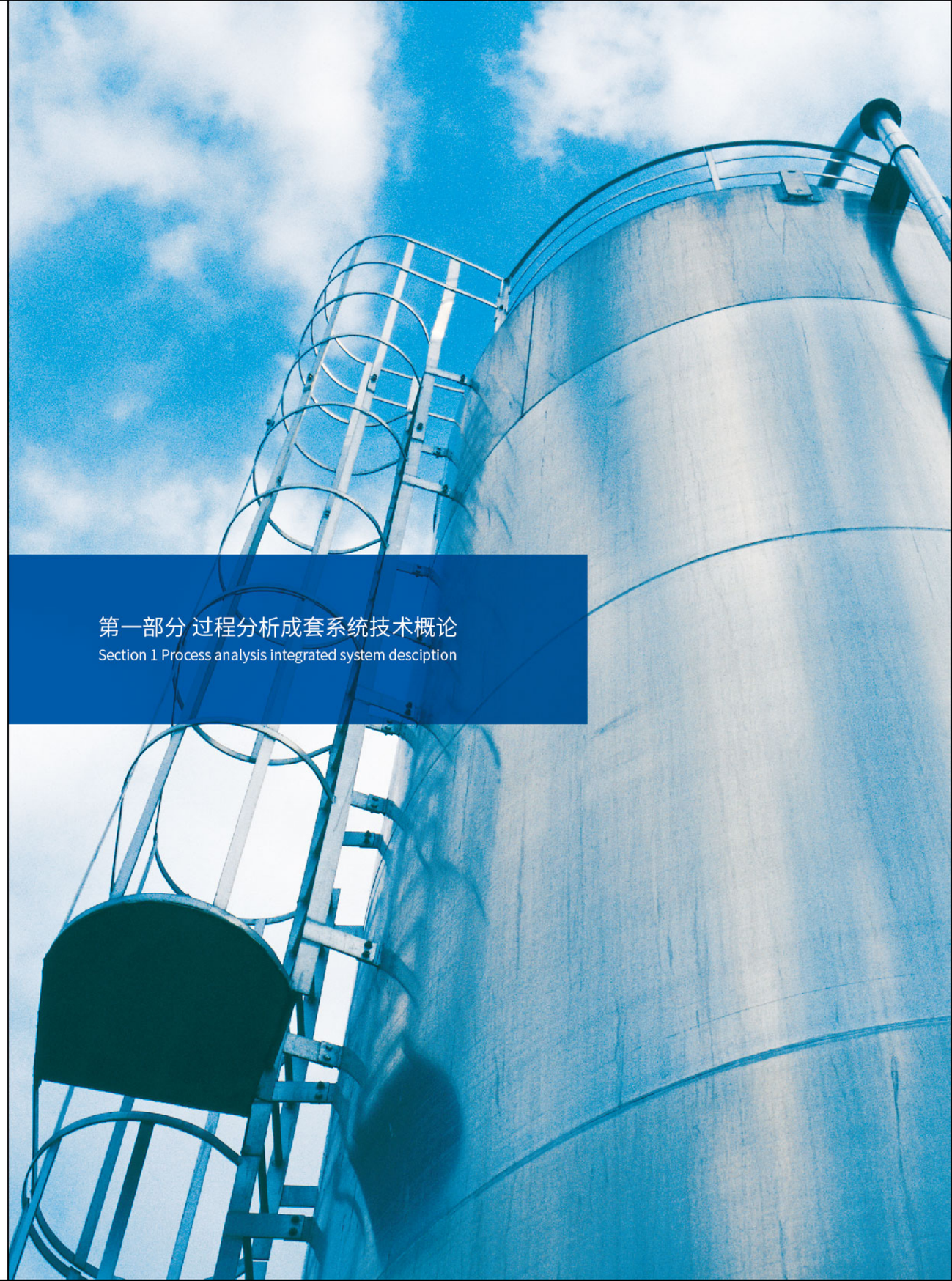
Committed to the research and application development of various analysis and testing technologies at the forefront of the industry, with 8 series of more than 100 varieties products are used in many industries such as environmental protection, metallurgy, petrochemical, chemical, energy, food, agriculture, transportation, water conservancy, construction, pharmaceuticals, brewing, aviation and scientific research etc, and have been exported to more than 20 countries and regions including Germany, the United States, Britain, South Korea, India, and Russia.

Faced with the rapid development of electronic technology and the in-depth development of the market economy, we will take "strive to revitalize China's industrial control industry and strive to create an internationally renowned industrial control brand" as the goal. With the accumulated experience in the field of industrial testing and automation, we will continue to develop, provide every user with value-for-money products and services, and strive to contribute to the modernization of our country!

BROCHURE
CONTENT
手册目录







一、过程分析成套系统的应用指南

1、对于完善的气体检测，起决定作用的是仪器分析与千差万别的现场工艺条件匹配得当；
2、仪器分析与气样条件的正确匹配，只有通过针对性的专业型成套系统的专业化设计才可能实现；
3、对检测分析结果的所有怀疑，只有正确地使用标准气，才能予以确认。

二、过程分析成套系统的技术对策

过程分析面对的困难和问题
1、高温，高粉尘，高水分，负压力，腐蚀性等恶气样条件；
2、较高的自动化程度，少维护或免维护；
3、保证必要的监测准确度（即高精度）防溅、防尘，防爆，防腐等方面的防护要求；
4、较快的反应速度，滞后时间一般不允许超过30-60秒；
5、各种特殊应用要求。

三、过程分析成套系统的供货程序

1、填写分析系统订货技术协议，将作为合同的有效组成部分，买卖双方协商确认分析系统的技术配置方案；
2、签订经济合同；
3、分析系统的针对性设计，成套系统的生产及总装全性能调试；
4、现场投运等全过程服务；
5、供货周期一般1-4个月。

1、The process analysis integrated system application guide

1.For a perfect process analyzer system, its pretreatment must match with the process sample gas conditions in sample point;
2.This can be realized by professional design;
3.If the results were doubted, use the standard gas to confirm it.

2、The technology countermeasure of process analysis integrated system

The difficulty and problem of the process analysis system application
1.Various wicked sample gas conditions, e.g. high temperature, causticity and so on;
2.High automatization level, less maintenance or no maintenance;
3.Guarantee the determining accuracy, and satisfy the various requirement ,e.g. dustproof explosion proof; anti sepsis and so on
4.Fast response time delay time must be less than 30-60 seconds;
5.Various special application requirement.

3、Supplying procedure of process analysis integrated system

1.Filling the technical agreement card, it will be a effective part of contract. both supplier and buyer should confirm the thchnical configuration project;
2.Sign an economic contract;
3.Special design, manufacture and debugging of process analysis system;
4.The whole service such as field commissioning, training;
5.Goods supplying period is about 1-4 months.

四、样品处理系统关键技术

1、全面满足在线分析仪的匹配与协调的要求；
2、合理匹配、完善组合，结构合理，布局美观；
3、高可靠的取样探头是第一重点，不可勉强应付；
4、样气过滤除尘、冷凝脱湿（及排放冷凝液）一定要彻底，不留下任何潜在风险；
5、确保样品不变质，有抗广义干扰的全面能力；
6、工程应用要有长期可靠、协调运行的能力；
7、成本可控。

五、在线分析系统工程应用协调运行的高难度

1、分析系统上述四个技术结构层面之间的协调，这是最复杂、最重要、最困难的；
2、在线分析仪的传感器与分析仪的协调；
3、分析系统与样气条件、现场应用条件的协调；
4、样气处理系统各部件之间的协调；
5、现实技术问题和潜在技术冲突之间的协调。

六、在线分析系统具有四层技术结构层次

1、在线分析仪（含传感器）；
2、样品处理系统（含功能部件）；
3、在线分析系统；
4、在线分析系统集成（即分析小屋集成）。

＊ 在线分析系统已经突破和超越了在线分析仪，所以应该是在线分析系统带分析仪，在线分析系统带样品处理系统。

4、The key technology of sample processing system

1.Fully meet the matching and coordination requirements of online analyzers;
2.Reasonable matching, perfect combination, reasonable structure and beautiful layout;
3.High-reliability sampling probe is the first priority;
4.Sample gas filtration and dust removal, condensation and dehumidification (and discharge of condensate) must be thorough without leaving any potential risks;
5.Ensure that the sample does not deteriorate and has the overall ability to resist generalized interference;
6.Engineering applications must have long-term reliable and coordinated operation capabilities;
7.Controllable cost.

5、The high difficulty of online analysis system engineering application coordinated operation

1.Analyzer the coordination between the above four technical structure levels of the system, which is the most complex, important, and difficult;
2.Coordination between the sensor and the analyzer;
3.Coordination of analysis system with sample gas conditions and field application conditions;
4.Coordination among the various components of the sample gas processing system;
5.Coordination between actual technical problems and potential technical conflicts.

6、The online analysis system has four levels of technical structure

1.Online analyzer (including sensor);
2.Sample processing system (including functional components);
3.Online analysis system;
4.Online analysis system integration (ie analysis room integration).

＊ The online analysis system has broken through and surpassed the online analyzer, so it should be the online analysis system with the analyzer, and the online analysis system with the sample processing system.

第二部分 CI-XT6xxx系列过程分析成套系统

Section 2 CI-XT6xxx Series process analysis integrated system

概述：

CI-XT6000系列过程分析成套系统是采用世界先进在线分析技术与自动化测控技术相结合，依托昶艾公司多年在气体分析领域中积累的丰富经验精心打造而成。整个系统具有设计先进、运行可靠、自动化程度高、维护少、寿命长等特点。

广泛应用于建材、冶炼、空分、石油、化工、电力、轻工、制药、环保以及科研领域，根据应用的行业可以分为：

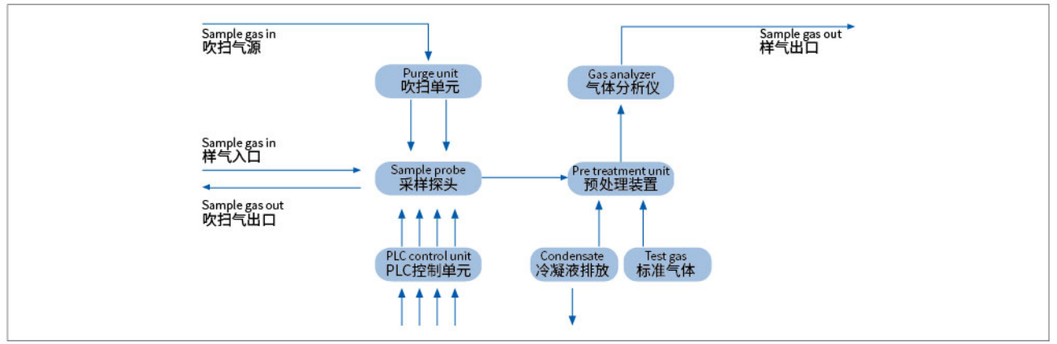
1、CI-XT6100型空分过程分析成套系统
2、CI-XT6200型石油化工过程分析成套系统
3、CI-XT6300型冶金过程分析成套系统
4、CI-XT6400型煤化工过程分析成套系统
5、CI-XT6500 型热处理过程分析成套系统
6、CI-XT6500C型可控气氛炉过程分析成套系统
7、CI-XT6500G型干熄焦过程分析系统
8、CI-XT6600型食品加工过程分析成套系统
9、CI-XT6700型高炉煤气热值分析成套系统
10、CI-XT62B4型煤粉生产过程分析成套系统

特别提示：

在线分析仪与样气处理系统通过针对现场应用条件和样气条件，规范的专业化分析系统设计，所实现的合理匹配与完善组合，能长期连续稳定、准确可靠，近于免维护地协调运行的成套设备。

工作流程原理示意图

Workflow schematic diagram



Overview:

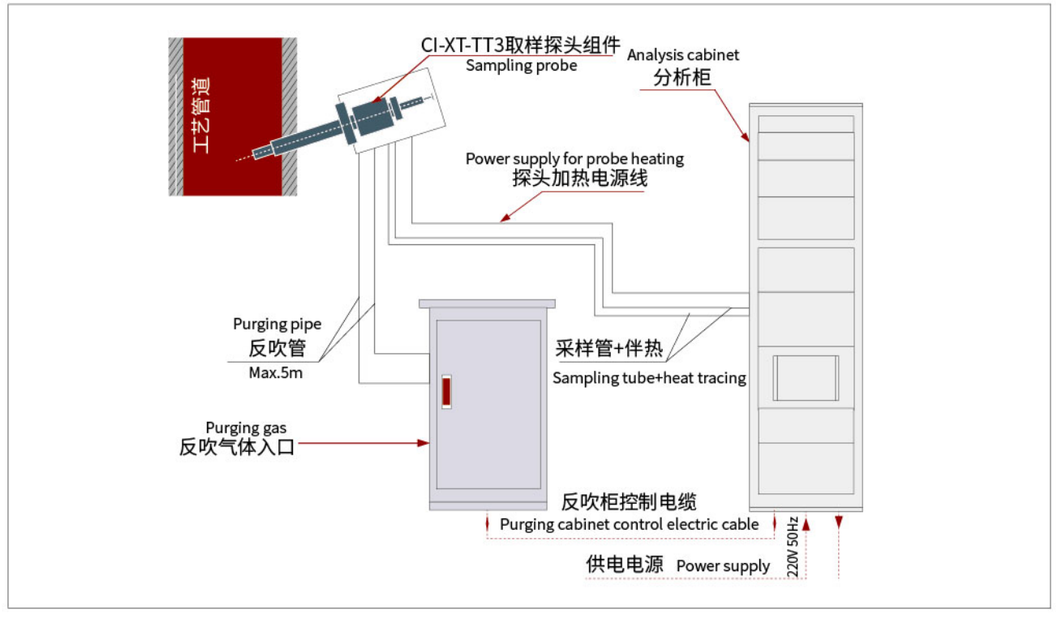
CI-XT6000 series process analysis integrated system adopt the world's advanced online analysis technology and automation measurement control combining technology. The whole system has the characteristics of advanced design, reliable operation, high degree of automation, low maintenance, long life, etc..
It is widely used in the fields of building materials, smelting, air separation, petroleum, chemical, electric power, light industry, pharmaceuticals, environmental protection and scientific research. According to the applied industries, it can be divided into:

1. CI-XT6100 air separation process analysis integrated system
2. CI-XT6200 petrochemical process analysis integrated system
3. CI-XT6300 metallurgical process analysis integrated system
4. CI-XT6400 coal chemical process analysis integrated system
5. CI-XT6500 heat treatment process analysis integrated system
6. CI-XT6500C controllable atmosphere furnace process analysis integrated system
7. CI-XT6500G CDQ process analysis system
8. CI-XT6600 food processing process analysis integrated system
9. CI-XT6700 blast furnace gas calorific value analysis integrated system
10. CI-XT62B4 pulverized coal production process analysis integrated system

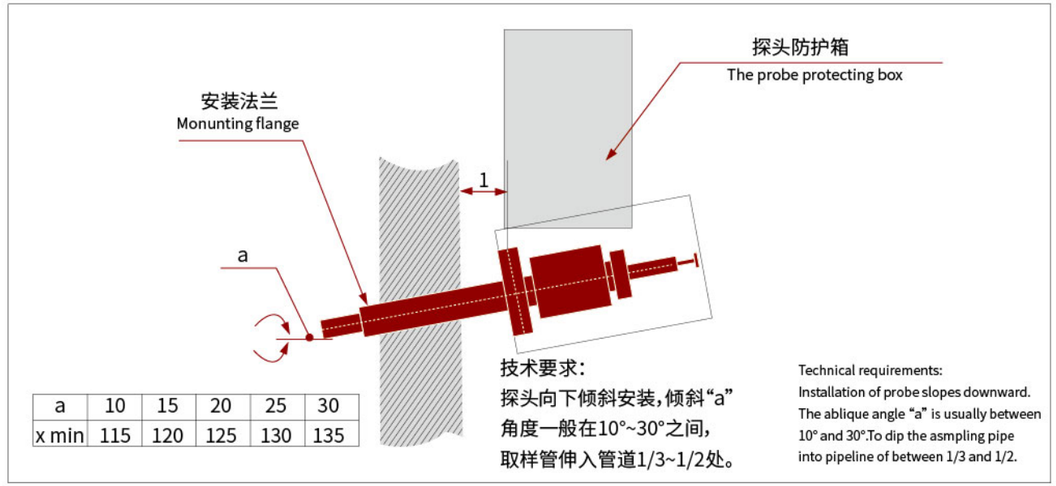
Special note:

The online analyzer and sample gas processing system are designed for on-site application conditions and sample gas conditions, through a standardized and professional analysis system design, and achieve reasonable matching and perfect combination, which can be continuous and stable for a long time, accurate and reliable. It' s close to maintenance-free coordinated operation integrated equipment.

现场安装示意图
Sinstallation schematic diagram

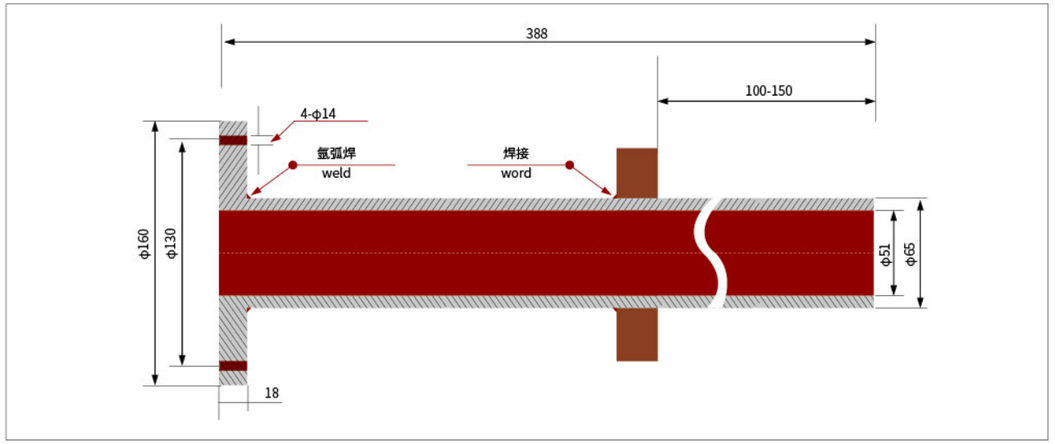


探头安装示意图
Probe mounting schematic diagram



a	10	15	20	25	30
x min	115	120	125	130	135

探头法兰安装示意图
Probe flange mounting schematic diagram(mm)



供电电源：

单相（3线）：220VAC，50Hz

一般功率消耗：大约0.5-3.0KW 其它电源需特殊设计。

环境条件：

环境温度：-20°C...+40°C

运输和存储温度：+0...+55°C

相对空气湿度：≤90%

气压：86-106kPa

安装环境：

分析仪柜应该安装在振动小且必须防尘和热辐射，室外安装时要求便于日常维护，能保持空气流通；

建议：安装在装有空调的室内，应避免安装室外。

分析小屋布置图 (如右图)
Layout of analyzer house (right picture)

分析小屋建议尺寸：

2500×2800×2100（宽×高×深）

Disposal diagram for analysis house

Suggesting Dim.of analysis house:

2500×2800×2100(W×H×D in mm)

Power Supply:

Single-phase (3-wire): 220VAC, 50Hz

General power consumption: about 0.5-3.0KW. Others power supply requires special design.

Environmental conditions:

Ambient temperature: -20°C...+40°C

Transportation and storage temperature: +0...+55°C

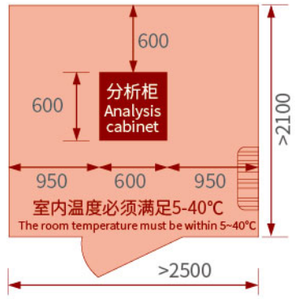
Relative air humidity: ≤90%

Air pressure:86-106kPa

Installation Environment:

The analyzer cabinet should be installed where the vibration is small and must be protected from dust and heat radiation. When it is installed outdoors, it is required to facilitate daily maintenance and maintain air circulation;

Recommendation: Install in an air-conditioned room, avoid installing it outdoors.



第三部分 过程分析成套系统的应用

Section 3 The application of process analysis integrated system

一、过程分析成套系统在空气分离工业的应用

选用产品名称：

CI-XT6xxx型空分过程分析成套系统

概述：

石油化工及冶金工业生产中大量使用空气分离提纯设备将空气分离出O_2、N_2、Ar及其他稀有气体做为原料气或现场保护气。空分过程在线分析系统是专门针对实现空分提纯设备在线连续检测而设计制造的分析系统。实时监测净化原料空气、产品微量杂质、氩中N_2、O_2分析，下塔污氮、液空中O_2分析，主冷液氧碳氢杂质等气体成分进行分析，可以确保产品纯度质量及制氧机设备的正常运行，使产品达到要求的纯度并达到高效、节能之目的。

1、Application of integrated process analysis system in air separation industry

Selected product name:

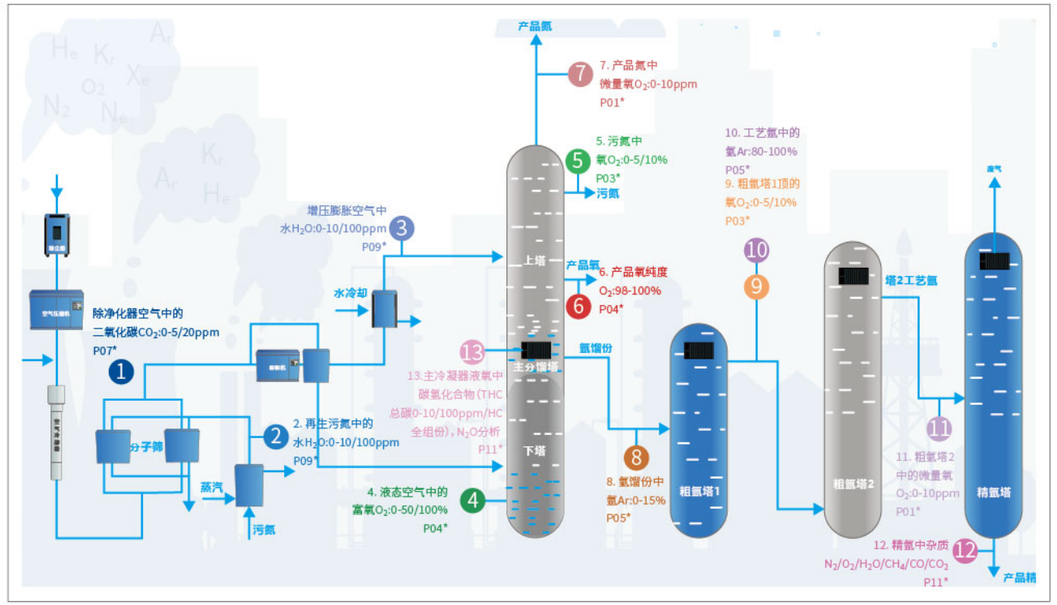
CI-XT6xxx Air Separation Process Analysis Integrated System

Overview:

In the production of petrochemical and metallurgical industries, a large number of air separation and purification equipment are used to separate the air into O_2, N_2, Ar and other rare gases as raw material gas or on-site protective gas. The air separation process online analysis system is an analysis system designed and manufactured specifically for the realization of online continuous detection of air separation purification equipment. Real-time monitoring of purified raw material air, product trace impurities, N_2 and O_2 analysis in argon, analysis of polluted nitrogen in the lower tower, O_2 analysis in liquid air, analysis of gas components such as main cooling liquid oxygen, hydrocarbon impurities, etc., to ensure product purity quality and the normal operation of oxygen generator equipment, so that the product can reach the required purity and achieve the purpose of high efficiency and energy saving.

空气分离工艺流程及气体分析点示意图

The sechematic diagram of technics process and gas detecting point in air Separationg process



空分流程中典型检测点参数表

Parameter table of typical detection points in air separation process

分析测点	检测点名称	测量组分及量程	分析仪器配置
1	净化器空气体进冷箱二氧化碳分析	CO_2:0-10ppm	CI-PC21
13	上塔底部主冷凝器液氧总碳分析	C_nH_m:0-10ppm	CI-PC9260
13	上塔底部主冷凝器液氧烃色谱分析	C_1-C_4/C_nH_m:0-100ppm	CI-PC9260
13	液氧中氧化亚氮	N_2O:0-100ppm	CI-PC21
2	再生污氮中的水	H_2O:0-100ppm	CI-PC31
5	出上塔污氮气纯度分析	N_2:0-5/10%	CI-PC11
6	产品氧纯度分析	O_2:98-100%	CI-PC81
7	产品氮气中微量氧分析	O_2:0-10ppm	CI-PC91
3	进冷箱增压空气含水量分析	H_2O:0-100ppm	CI-PC31
8	氩馏份含氩量分析	Ar:0-15%	CI-PC511
9	粗氩塔II顶部粗氩气氧含量分析	O_2:0-5/10%	CI-PC11
8	粗氩塔II出口粗氩气氧含量分析	O_2:0-25%	CI-PC11
11	粗氩塔II出口粗氩气微量氧分析	O_2:0-10ppm	CI-PC91
12	纯氩出精氩塔中微量氧分析	O_2:0-10ppm	CI-PC91
12	纯氩出精氩塔中的水	H_2O:0-100ppm	CI-PC31
10	粗氩塔II出口工艺氩气含量分析	Ar:80-100%	CI-PC511
12	纯氩微量氮分析	N_2:0-10ppm	CI-PC2001
4	液空气中富氧氧含量分析	O_2:10-100%	CI-PC81

分析检测点设置原则

1、能正确检测气体产品的质量情况；
2、能及时检测设备工艺状态；
3、能正确检测当地大气原料气的品质；
4、能正确地检测有害杂质积聚情况，确保设备安全运作。

Analysis and detection point setting principles

1.Can correctly detect the quality of gas products;
2.Be able to detect the equipment process status in time;
3.It can correctly detect the quality of local atmospheric feed gas;
4.It can accurately detect the accumulation of harmful impurities and ensure the safe operation of equipment.

样品预处理系统

在实际使用过程中遇到的问题和维护量也往往超过分析仪本身，所以分析系统的有效使用很大程度上依赖于样品取样和预处理系统的完善和可靠；

Sample pretreatment system

The problems encountered in actual use and the amount of maintenance often exceed the analyzer itself, so the effective use of the analysis system largely depends on the perfection and reliability of the sample sampling and pretreatment system;

所有过程分析系统都是为了确保分析仪器达到最佳工作状态而设计，而样品处理系统是过程分析系统的核心；
分析仪的分析精度要受到样品的代表性、实时性和物理状态的限制，一套完整的在线分析系统包含大量取样和预处理部件；
空分的样品气比较干净和干燥，所以预处理相对来说不比石化等行业那么复杂。

All process analysis systems are designed to ensure that the analytical instruments reach the best working condition, and the sample processing system is the core of the process analysis system;
The analysis accuracy of the analyzer is limited by the representativeness, real-time performance and physical state of the sample. A complete online analysis system includes a large number of sampling and pretreatment components;
The sample gas of air separation is relatively clean and dry, so the pretreatment is relatively not as complicated as in petrochemical and other industries.

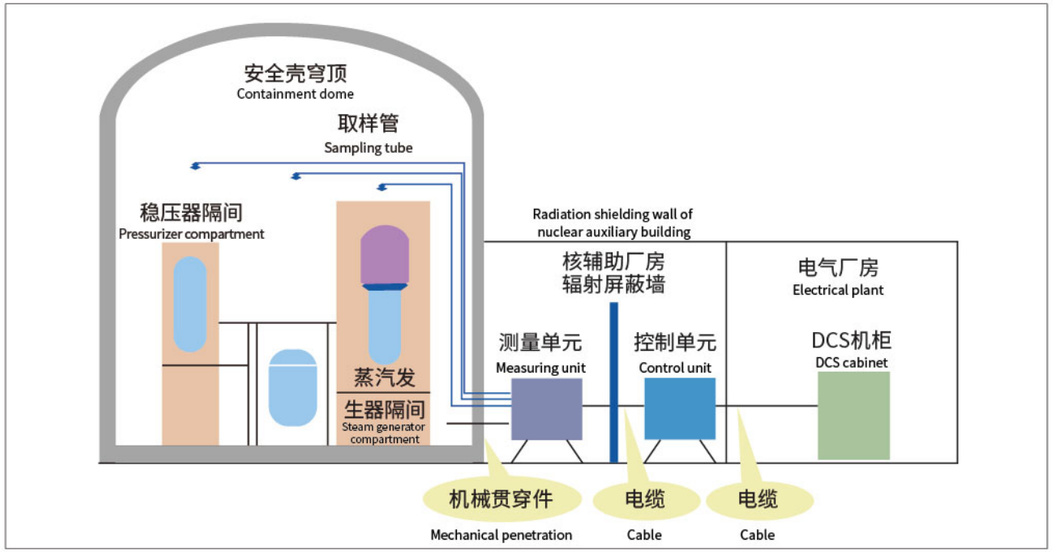
二、过程分析系统在核电工业的应用

选用产品名称：
CI-XT6xxx型核电过程分析系统
1、安全壳内气氛中的氢气和氧气分析
核电厂安全壳出现事故后，对安全壳内气氛中的氢气和氧气进行分析，可以为安全壳出现事故的原因分析提供有力的参考依据。分析系统通过微小的取样管道将安全壳内混合气氛抽取到样气处理单元，经过温度、压力、湿度的处理后，提供给分析仪器进行分析，分析后的尾气，又送回到安全壳内。
2、废气系统氢气、氧气分析
核电厂废气系统氢气、氧气分析：通过对核电厂废气系统中的氢气、氧气分析，可以达到安全控制的目的。壳内气体抽出式测量，通过输送管路引出到安全壳外，混合气体样品需要经过降温、除湿、降压、稳流和过滤等措施处理后，再送入氢气分析仪进行氢气浓度的检测，分析完毕后将样品气体无泄漏地回送到安全壳内。在该系统中，由于气体的预处理和分析都安排在安全壳外完成，不受核电厂严重事故后安全壳内恶劣的环境条件的影响，保证了氢气传感器检测的可靠性。

2、Application of process analysis system in nuclear power industry

Selected product name:
CI-XT6xxx type Nuclear Power Process Analysis System
1.Analysis of hydrogen and oxygen in the atmosphere inside the containment.
After an accident occurs in the containment of a nuclear power plant, the analysis of hydrogen and oxygen in the atmosphere can provide a strong reference basis for the analysis of the cause of accidents in the containment. The analysis system extracts the mixed atmosphere in the containment to the sample gas processing unit through a tiny sampling pipe, and after the temperature, pressure, and humidity are processed, it is provided to the analysis instrument for analysis, and the analyzed exhaust gas is sent back to the containment.
2.Analysis of hydrogen and oxygen in exhaust system
Analysis of hydrogen and oxygen in the exhaust gas system of nuclear power plants: Through the analysis of hydrogen and oxygen in the exhaust gas system of nuclear power plants, the purpose of safety control can be achieved. Gas extraction measurement inside the shell is led out of the containment through the conveying pipeline. The mixed gas sample needs to be processed by measures such as cooling, dehumidification, pressure reduction, flow stabilization and filtration, and then send to the hydrogen analyzer for hydrogen concentration detection and analysis. After completion, return the sample gas to the containment without leakage. In this system, because the gas pretreatment and analysis are arranged outside the containment, it is not affected by the harsh environmental conditions inside the containment after a serious accident in the nuclear power plant, ensuring the reliability of hydrogen sensor detection.

检测点与分析仪配置参数表
Parameter list of gas detecting point and analyzer configuration in ammonia synthetic gas



序号 NO.	检测点名称 Name of detecting point	测量组分及量程 Measuring component And range	分析仪器配置 Analyzer type
1	安全壳内事故后氢气、氧气分析 H_2 and O_2 analysis after containment accident	H_2:0-15%	PC551-2 Ex
		O_2:0-25%	PC951-2 Ex
2	废气系统氢气、氧气分析 H_2 and O_2 analysis in exhaust gas	H_2:0-5	PC551-2 Ex
		O_2:0-10%	PC951-2 Ex

三、过程分析成套系统在石油化工工业的应用

选用产品名称：

CI-XT6200型石油化工过程分析成套系统

概述：

石油化工生产过程中的气体进行分析，对过程分析成套系统的测量准确性、防爆安全性、快速响应和长期可靠性等的要求非常高，同时还要考虑背景气对测量组分的干扰影响。

3、The application of process analysis integrated system in petroleum and chemical Industry

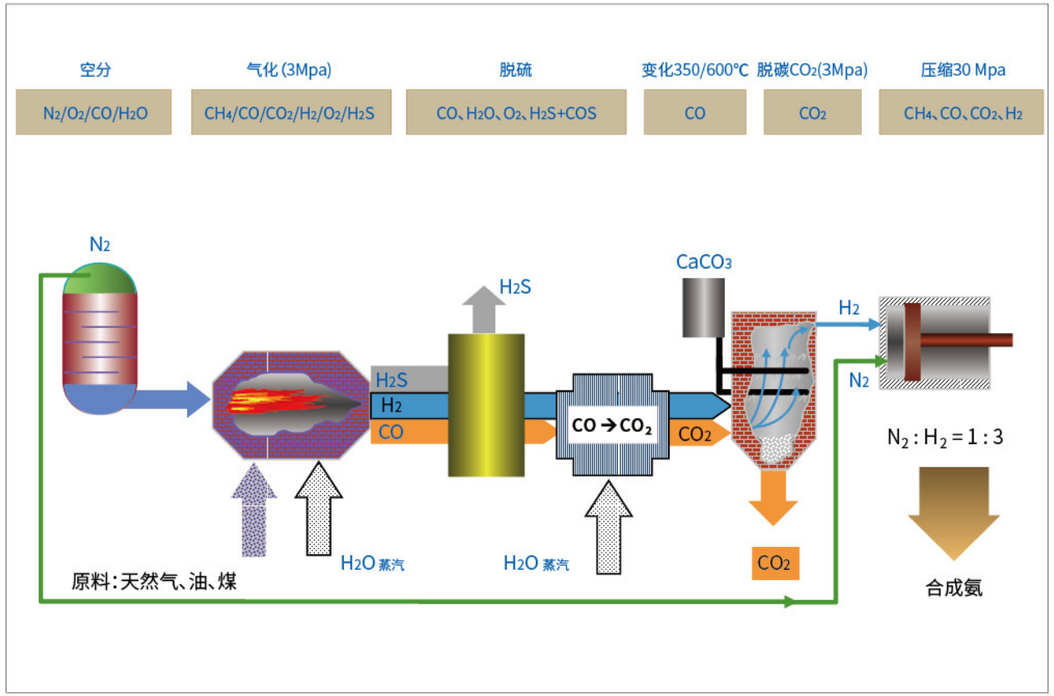
The selection product name :

CI-XT6200 Petrochemical process analysis integrated System

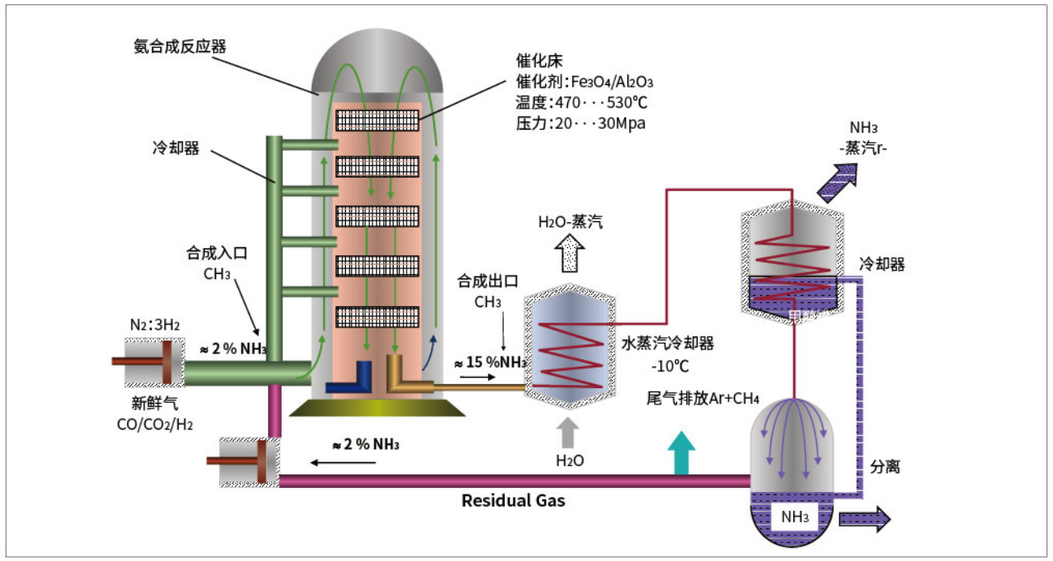
General description:

The gas analysis of production process in petroleum and chemical industry, which has the strict performance request to the process analysis system in measuring accuracy, explosion-proof security, quick response and the long-term operating reliability, simultaneously, to solve interference of other gas vs measuring gas.

合成氨气工艺流程及气体分析点示意图
The schematic diagram of technics process and gas detecting point in ammonia synthetic gas



合成氨工艺流程及气体分析点示意图
The schematic diagram of technics process and gas detecting point in synthetic ammonia



合成氨过程气体检测点及分析仪器配置情况表
Parameter list of gas detecting point and analyzer configuration in coal making methanol synthetic ammonia

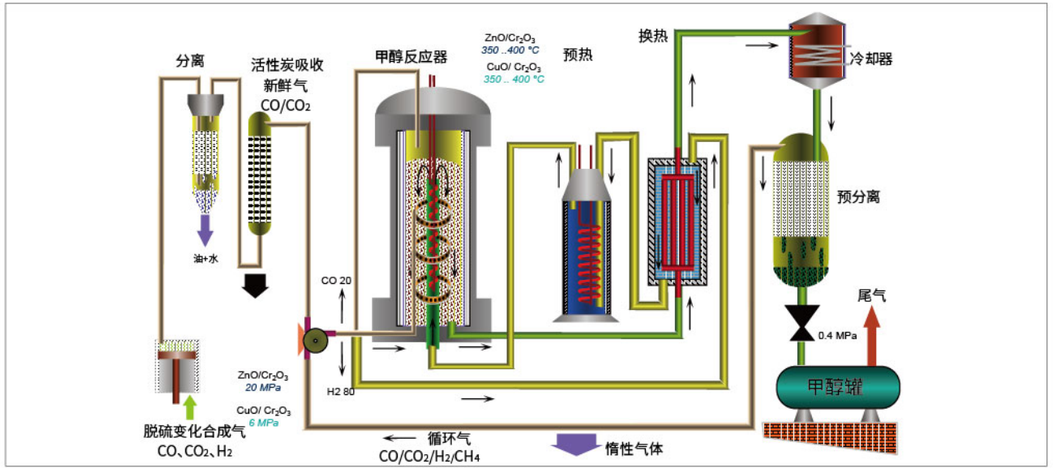
序号 NO.	检测点名称 Name of detecting point	测量组分及量程 Measuring component and rang	分析仪器配置 Analyzer type
1	精制气CO 分析 CO analysis in refining gas	CO:0-300ppm	CI-PC21/CI-PC683-B Ex
2	精制气CO分析 CO analysis in refining gas	CO:0-200ppm	CI-PC21/CI-PC683-B Ex
3	循环气H_2分析 H_2 analysis circulation gas	H_2:0-35%/80%	CI-PC511/CI-PC55-1 Ex
4	合成塔入口NH_3分析 NH_3 analysis in synthetic tower inlet	NH_3:0-10%	CI-PC21/CI-PC68-1 Ex
5	合成塔出口NH_3分析 NH_3 analysis in synthetic tower outlet	NH_3:0-20%	CI-PC21/CI-PC68-1 Ex
6	补充气H_2分析 H_2 analysis in supply gas	H_2:30-90%	CI-PC511/CI-PC55-1 Ex
7	合成循环气CH_4分析 CH_4 analysis in synthetic circulation gas	CH_4:0-20%	CI-PC21/CI-PC68-1 Ex
8	合成循环气Ar分析 Ar analysis in synthetic circulation gas	Ar:0-10%	CI-PC511/CI-PC55-1 Ex

合成过程气体检测点及分析仪器配置情况表
Parameter list of gas detecting point and analyzer configuration in ammonia synthetic gas

序号 NO.	检测点名称 Name of detecting point	测量组分及量程 Measuring component And range	分析仪器配置 Analyzer type
1	制氧工段氧分析 Oxygen analysis in oxygen making workshop section	O_2:0-2000ppm	CI-PC91/CI-PC95-1 Ex
2	制氧工段氧分析 Oxygen analysis in oxygen making workshop section	O_2:0-100%	CI-PC81/CI-PC851-1 Ex
3	气柜入口氧含量分析 Oxygen analysis in gas tank inlet	O_2:0-1/3%	CI-PC11/CI-PC951-1 Ex
4	脱硫工段O_2分析 Oxygen analysis in desulfurization workshop section	O_2:0-2%	CI-PC11/CI-PC951-1 Ex
5	脱硫工段H_2分析 Hydrogen analysis in desulfurization workshop section	H_2:0-60%	CI-PC511/CI-PC55-1 Ex
6	脱硫工段CO分析 CO analysis in desulfurization workshop section	CO:0-40%	CI-PC21/CI-PC68-1 Ex
7	中变炉出口CO分析 CO analysis in middle change furnace	CO:0-5/10%	CI-PC21/CI-PC68-1 Ex
8	低变炉出口CO分析 CO analysis low change furnace	CO:0-1/3%	CI-PC21/CI-PC68-1 Ex
9	脱碳出口CO_2分析 CO_2 analysis in decarburization outlet	CO_2:0-1%	CI-PC21/CI-PC68-1 Ex
10	合成塔入口CO分析 CO analysis in synthetic tower inlet	CO:0-10/300ppm	CI-PC21/CI-PC683-B Ex
11	合成塔入口CO_2分析 CO_2 analysis in synthetic tower inlet	CO_2:0-10/200ppm	CI-PC21/CI-PC683-B Ex
12	合成塔入口CH_4分析 CH_4 analysis in synthetic tower inlet	CH_4:0-3/25%	CI-PC21/CI-PC68-1 Ex
13	新鲜气H_2分析 H_2 analysis in fresh gas	H_2:0-80%	CI-PC511/CI-PC55-1 Ex

甲醇合成工艺流程及气体分析点示意图

The schematic diagram of techincs process and gas deteiting point in methanol



四、甲醇合成过程气体检测点及分析仪器配置情况表

Parameter list of gas detecting point and analyzer configuration in methanol synthetic gas

序号 NO.	检测点名称 Name of detecting point	测量组分及量程 Measuring component and rang	分析仪器配置 Analyzer type
1	合成气CO分析 CO analysis in synthetic gas	CO:0-20/50%	CI-PC21/CI-PC68-1 Ex
2	合成气CO_2分析 CO_2 analysis in synthetic gas	CO_2:0-5/15%	CI-PC21/CI-PC68-1 Ex
3	合成H_2分析 H_2 analysis in synthetic gas	H_2:0-90/100%	CI-PC511/CI-PC55-1 Ex
4	新鲜气CO分析 CO analysis in fresh gas	CO:0-40/50%	CI-PC21/CI-PC68-1 Ex
5	新鲜气CO_2分析 CO_2 analysis in fresh gas	CO_2:0-5/10%	CI-PC21/CI-PC68-1 Ex
6	新鲜气H_2分析 H_2 analysis in fresh gas	H_2:0-90%	CI-PC511/CI-PC55-1 Ex
7	循环气CO分析 CO analysis in circulation gas	CO:0-10%	CI-PC21/CI-PC68-1 Ex
8	循环气CO_2分析 CO_2 analysis in circulation gas	CO_2:0-5%	CI-PC21/CI-PC68-1 Ex
9	循环气H_2分析 H_2 analysis in circulation gas	H_2:0-100%	CI-PC511/CI-PC55-1 Ex
10	循环气CH_4离线分析 CH_4 off-time analysis in circulation gas	CH_4:0-10%	CI-PC21/CI-PC68-1 Ex

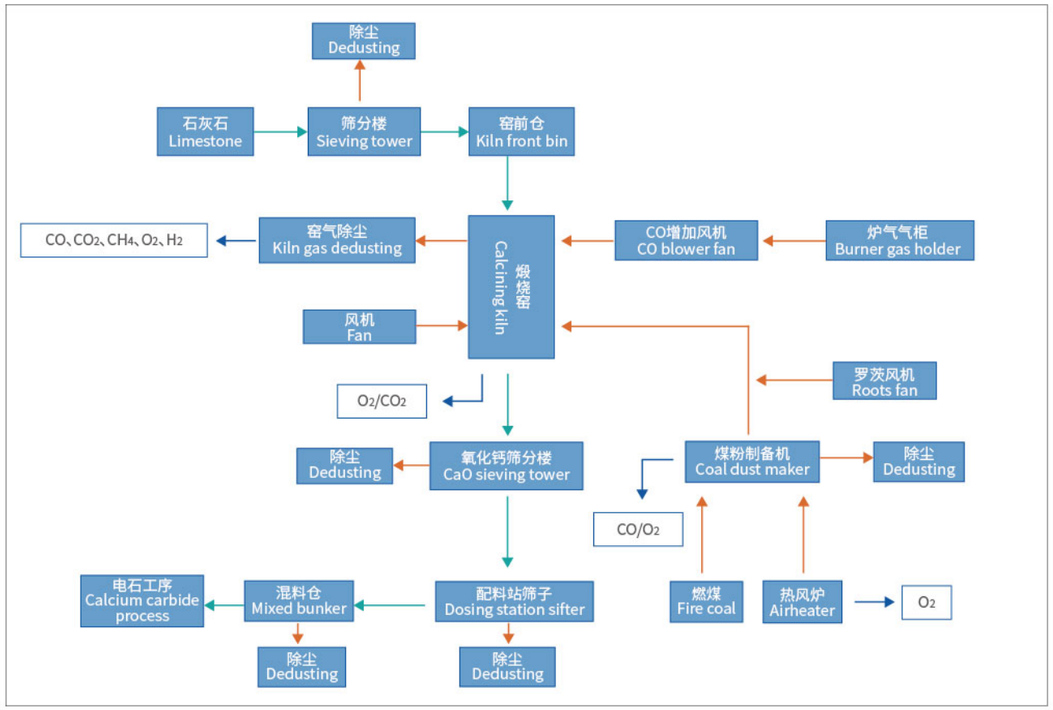
煤制甲醇合成气过程气体检测点及分析仪器配置情况表

Parameter list of gas detecting point and analyzer configuration in coal making methanol synthetic gas

序号 NO.	检测点名称 Name of detecting point	测量组分及量程 Measuring component And range	分析仪器配置 Analyzer type
1	CO_2在线分析 CO_2 on-line analysis	CO_2:0-1000ppm	CI-PC21/CI-PC683-B Ex
2	露点水分析 Dew point water analysis	H_2O:0-50ppm	CI-PC31/PC35-1 Ex
3	洗涤塔出口合成气CH_4分析 Synthetic gas CH_4 analysis in washing tower	CH_4:0-2000ppm	CI-PC21/CI-PC68-1 Ex
4	洗涤塔出口合成气CO分析 Synthetic gas CO analysis in washing tower	CO:0-50/60%	CI-PC21/CI-PC68-1 Ex
5	洗涤塔出口合成气CO_2分析 Synthetic gas CO_2 analysis in washing tower	CO_2:0-20/30%	CI-PC21/CI-PC68-1 Ex
6	洗涤塔出口合成气H_2分析 Synthetic gas H_2 analysis in washing tower	H_2:0-20/60%	CI-PC511/CI-PC55-1 Ex
7	洗涤塔出口合成气O_2分析 Synthetic gas O_2 analysis in washing tower	O_2:0-200ppm/2%	CI-PC21/CI-PC683-B Ex
8	洗涤塔出口合成气H_2S分析 Synthetic gas H_2S analysis in washing tower	H_2S:0-1%	CI-PC2200/CI-PC68-1 Ex
9	出口净化气中CO_2分析 CO_2 analysis in outlet purifying gas	CO_2:0-16/50ppm	CI-PC21/CI-PC683-B Ex
10	出口净化气中CO_2分析 CO_2 analysis in outlet purifying gas	CO_2:0-6/10%	CI-PC21/CI-PC68-1 Ex
11	出口净化气中总硫分析 Total sulfur analysis in outlet purifying gas	THC:0-0.25/1.5ppm	SP1000E Ex
12	烧嘴冷却水CO分析 CO analysis in cooling	CO:0-10/200ppm	CI-PC21/CI-PC683-B Ex
13	变换气CO分析 CO analysis in changing gas	CO:0-30/50%	CI-PC21/CI-PC68-1 Ex

电石生产装置工艺流程过程气体分析及气体分析点示意图

The schematic diagram of technics process and gas detecting point in calcium carbide production process gas analysis



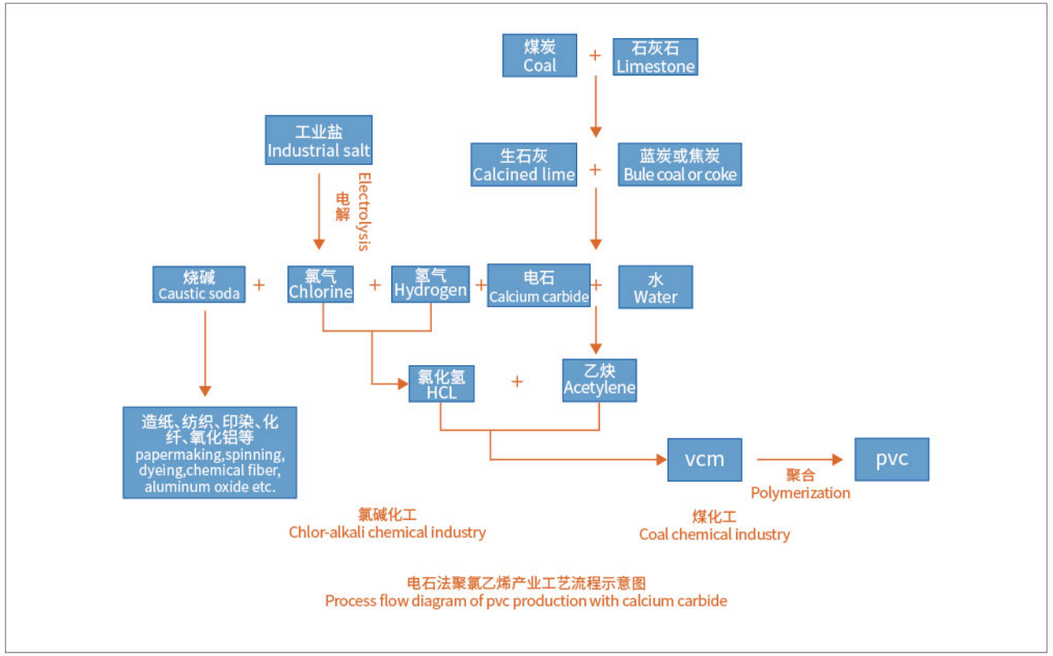
电石生产装置过程气体检测点及分析仪器配置情况表

Parameter list of gas detecting point and analyzer configuration in calcium carbide production

序号 NO.	检测点名称 Name of detecting point	测量组分及量程 Measuring component and rang	分析仪器配置 Analyzer type
1	电石尾气/炉气净化 Calcium carbide exhaust	CO (70-90%)、CO_2 (0-6%)、CH_4、O_2 (0-1%)、H_2 (0-15%)	CI-PC6500 Ex CI-PC66 Ex CI-PC1100 Ex
2	热风炉 Hot blast stove	O_2	CI-PC6500-A1 Ex CI-PC66 Ex
3	煤粉制备 Coal dust making	CO、O_2	CI-PC6500 Ex CI-PC66 Ex
4	锻烧炉 Calcinator	CO_2、O_2	CI-PC6500 Ex CI-PC66 Ex

电石制PVC生产过程气体分析工艺流程及气体分析点示意图

The schematic diagram of technics process and gas detecting point in calcium carbide making PVC production process gas analysis



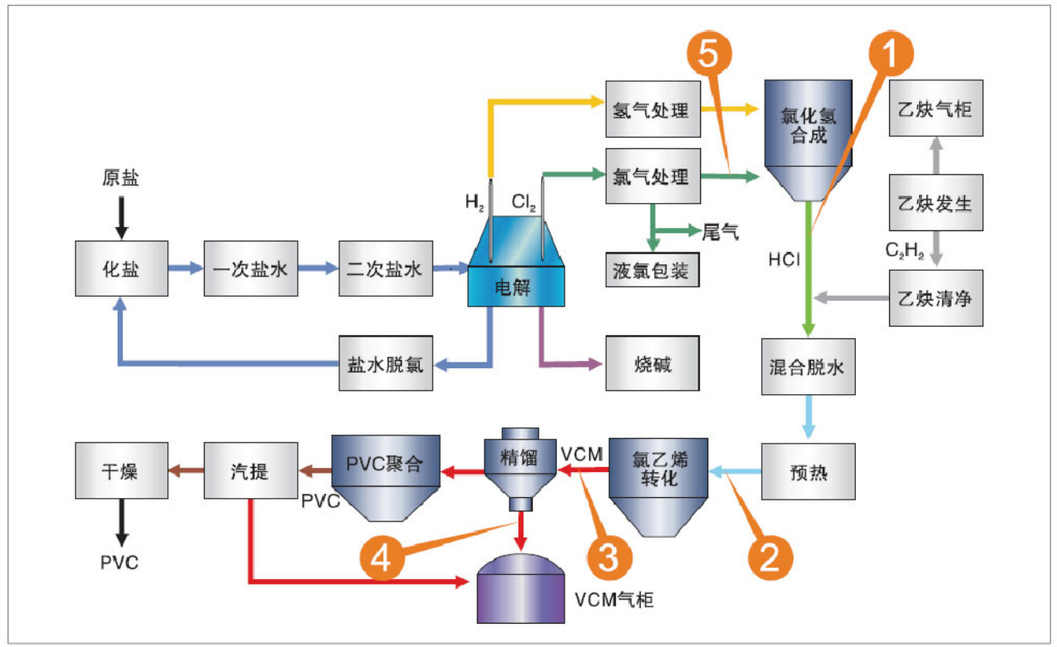
电石制PVC过程气体检测点及分析仪器配置情况表

Parameter list of gas detecting point and analyzer configuration in calcium carbide making PVC

序号 NO.	检测点名称 Name of detecting point	测量组分及量程 Measuring component and rang	分析仪器配置 Analyzer type
1	乙炔尾气 C_2H_2 exhaust gas	O_2	CI-PC6500 Ex CI-PC66 Ex
2	VCM尾气 VCM exhaust gas	O_2	CI-PC6500 Ex CI-PC66 Ex
3	聚氯乙烯 PVC	O_2	CI-PC6500 Ex CI-PC66 Ex
4	燃烧炉 Calcinator	O_2	CI-PC6500 Ex CI-PC66 Ex

氯碱工艺过程气体检测点及分析仪器配置情况表

Configuration of gas detection points and analytical instruments in chlor alkali process



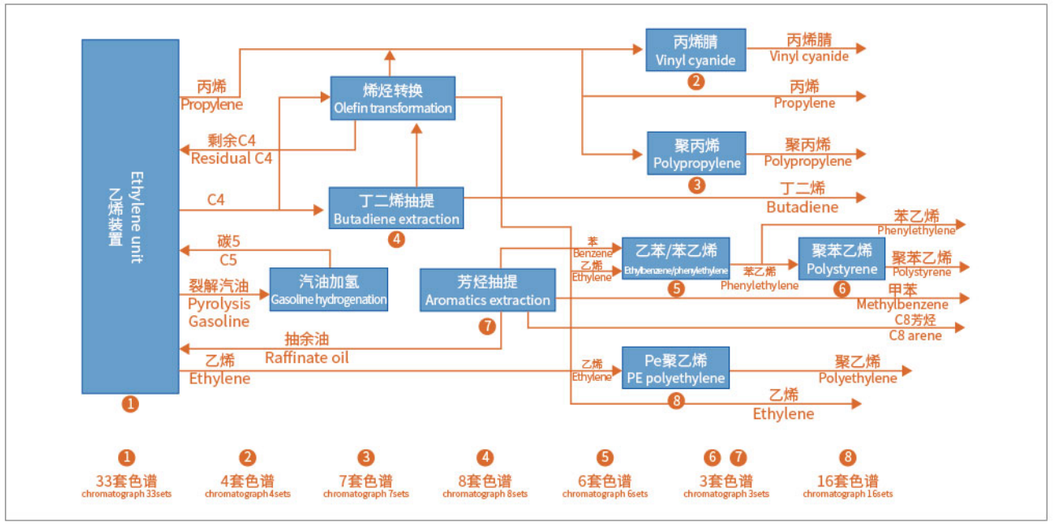
氯碱工艺过程气体分析工艺流程及气体分析点示意图

Parameter list of gas detecting point and analyzer configuration in coke industry

序号 NO.	检测点名称 Name of detecting point	测量组份 Measuring component	分析仪器配置 Analyzer type
1	HCl总管 HCl main pipe	HCl、Cl_2	CI-PC6500 Ex CI-PC66 Ex/CI-PC2200
2	VCM合成炉入口 VCM synthetic furnace entrance	HCl、C_2H_2	CI-PC6500 Ex CI-PC66 Ex
3	VCM合成炉出口 VCM synthetic furnace exit	HCl、C_2H_2	CI-PC6500 Ex CI-PC66 Ex
4	VCM总管 VCM main pipe	HCl、C_2H_2	CI-PC6500 Ex CI-PC66 Ex
5	氯压机后 After chlorine compressor	O_2	CI-PC6500 Ex CI-PC66 Ex

乙烯生产装置过程气体分析工艺流程及气体分析点示意图

The schematic diagram of technics process and gas detecting point in ethylene production process gas analysis



乙烯生产过程气体检测点及分析仪器配置情况表

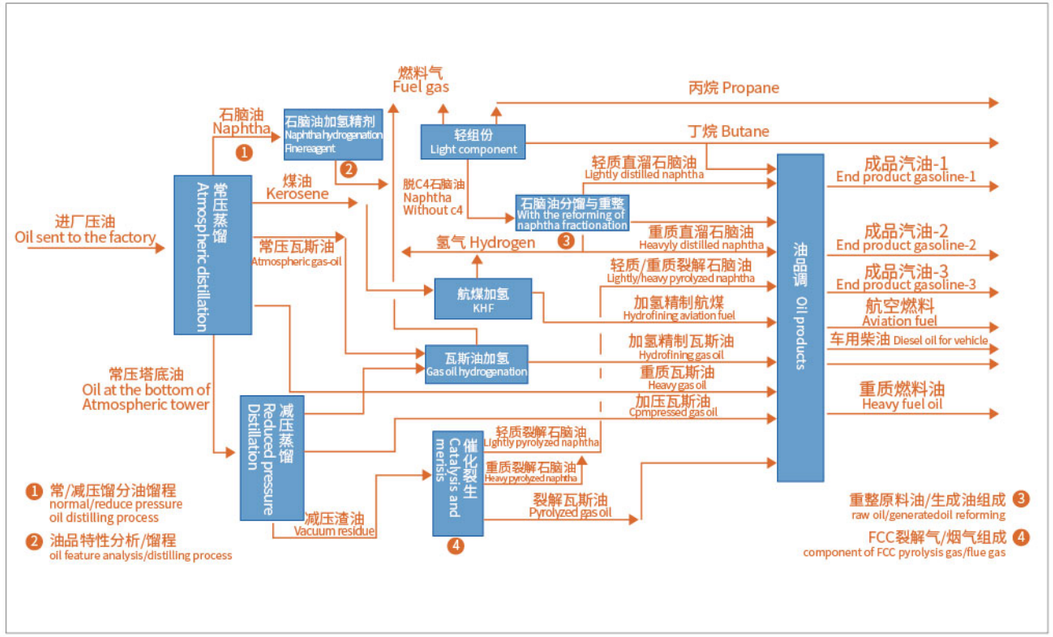
Parameter list of gas detecting point and analyzer configuration in ethylene production

序号 NO.	在线分析仪器类型 On-line analyzer type	测量组份 Measuring component	分析仪器配置 Analyzer type
1	工业色谱仪 Industrial Chromatograph	C_1-C_9、H_2、N_2、CO、CO_2、SO_2、H_2S	27-33
2	工业质谱仪 Industrial mass-spectrograph	H_2、CH_4、C_2H_4、C_2H_6、C_3H_6、C_3H_8	2
3	激光分析仪 Laszer analyzer	O_2	11
4	燃料气热值仪 Fuel gas calorific value analyzer	热值 Calorific value	2-5
5	溶解氧分析仪 Dissolved oxygen analyzer	溶解氧 Dissolved oxygen	11
6	工业pH计 Industrial pH analyzer	PH	19
7	工业电导率仪 Industrial conductivity analyzer	电导率 Conductivity	16
8	微量水分析仪 Micro-water analyzer	H_2O	8

序号 NO.	在线分析仪器类型 On-line analyzer type	测量组份 Measuring component	分析仪器配置 Analyzer type
9	激光分析仪 Laszer analyzer	CO、CO_2、SO_2	2
10	总有机碳分析仪 TOC analyzer	TOC	2
11	可燃气体报警仪 Combustible gas alarm	H_2、CH_4	180
12	有毒气体报警仪 Toxic gas alarm	CO、H_2S、丙烯晴 CO、H_2S ,Acrylonitrile	12
13	分析小屋和系统集成 Field analysis house and system integration	分析小屋、系统 Field analysis house, system	8、12

炼油生产装置过程气体分析工艺流程及气体分析点示意图

The schematic diagram of technics process and gas detecting point in oil refining production process gas analysis



辅助装置可以用到色谱的工艺点：

MTBE原料气组成；
制氢裂解气组成；
气体分馏原料及成品气组成；
硫磺回收加氢反应器出口氢气纯度；
空分装置液氧中总烃的分析；
空分产品纯度分析；
油品特性指标（初馏点、干点等）分析。

Auxiliary equipment can be used in the process points of chromatography:

MTBE feed gas composition;
Hydrogen production cracked gas composition;
Gas fractionation raw material and product gas composition;
Sulfur recovery hydrogenation reactor outlet hydrogen purity;
Analysis of total hydrocarbons in liquid oxygen of air separation unit;
Air separation product purity analysis;
Oil characteristic index (initial boiling point, dry point, etc.) analysis.

炼油生产装置过程气体检测点及分析仪器配置情况表

Parameter list of gas detecting point and analyzer configuration in oil refining production analysis

序号 NO.	在线分析仪器类型 On-line analyzer type	测量组份 Measuring component	数量(台) Quantity (set)
1	工业色谱仪 Industrial chromatograph	炼厂气、催化重整 Refinery gas, catalytic reforming	22
2	激光分析仪 Laszer analyzer	催化裂化、制氢 Catalytic cracking, hydrogen manufacturing	5
3	激光分析仪 Laszer analyzer	加热炉 Heating furnace	1台/每炉 (set/per furnace)
4	激光分析仪 Laszer analyzer	催化裂化 Catalytic cracking	1
5	热导分析仪 Thermal conductivity analyzer	加氢装置 Hydrogen feeding device	多台 Several sets
6	紫外分析仪 Ultraviolet analyzer	脱硫和硫磺回收 Desulfurization and sulfur recovery	3
7	硫比值仪 Sulfur ration analyzer	硫磺回收 Sulfur recovery	1
8	微量水分析仪 Trace water analyzer	气体分偏、催化重整、甲烷化装置 Gas fractionation, catalytic reforming, methanation device	多台 Several sets

五、医药生化过程分析成套系统的应用

CI-XT60Exx系列离心机氧分析系统
CI-PC68-1在线原位激光气体分析仪
概述：

5、Pharmaceutical biochemistry application of process analysis integrated system

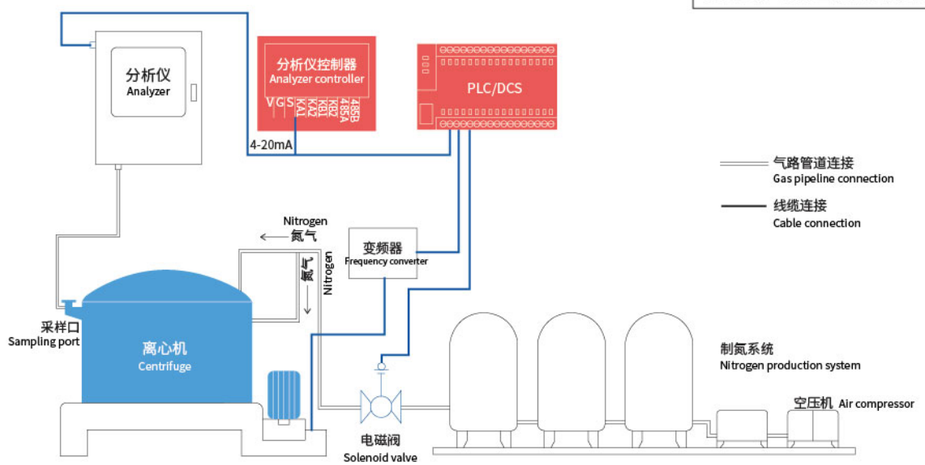
CI-XT60Exx series centrifuge oxygen analysis system
CI-PC68-1 online in-situ laser gas analyzer
Overview:

离心机在国民经济许多领域如化工、制药等行业中应用极广，其仍是当前化工中间体、医药原料药等生产工艺中固液分离的主要设备。化工、制药工业生产中很多场合都有防爆要求，因其介质有甲醇、乙醇、甲苯、丙酮、环己烷等有机溶剂，离心机在运行过程中的安全性成为选型的首要要求，在线氧气检测技术的应用，使系统更安全、产品质量更有保证。

Centrifuges are widely used in many fields of the national economy, such as chemical, pharmaceutical and other industries. They are still the main equipment for solid-liquid separation in the current production processes of chemical intermediates and pharmaceutical raw materials. Many occasions in the production of chemical and pharmaceutical industries have explosion-proof requirements. Because the media includes organic solvents such as methanol, ethanol, toluene, acetone, cyclohexane, etc., the safety of the centrifuge during operation becomes the primary requirement for selection. The application of online oxygen detection technology makes the system safer and product quality more assured.

离心机氧含量分析仪示意图
schematic diagram of centrifuge oxygen analyzer

离心机氧含量分析仪示意图

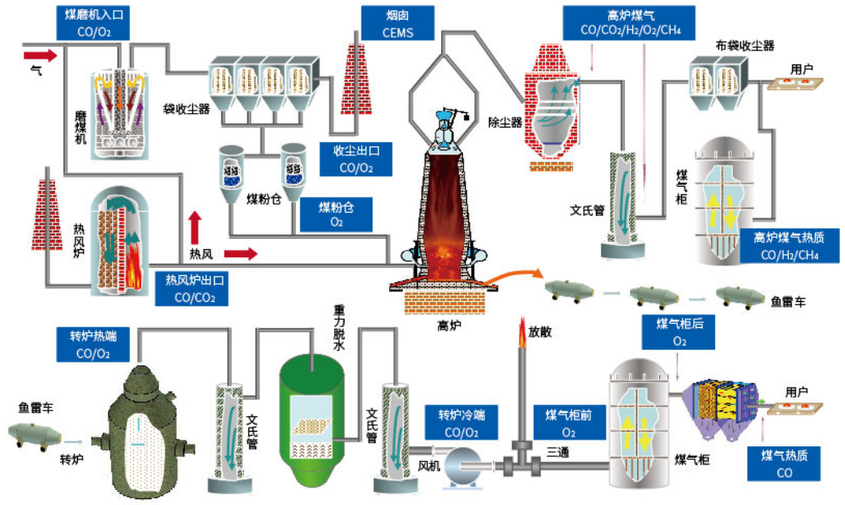


离心机安全在线监测点及分析仪器配置情况表
Configuration of centrifuge safety online monitoring points and analytical instruments

序号 NO.	检测点名称 Name of detecting point	测量组分及量程 Measuring component And range	分析仪器配置 Analyzer type
1	离心机上壳盖 Centrifuge upper shell cover	O_2:0-5%	PC68-1

六、过程分析系统在钢铁、冶金工业的应用
The application of process analysis system in metallurgy industry

炼钢炼铁工业流程及气体分析点示意图



七、转炉煤气回收过程气体检测点及分析仪器配置情况表
parameter list of gas detecting point ad analyzer configuration in converter coal gas recycle

序号 NO.	检测点名称 Name of detecting point	测量组分及量程 Measuring component and rang	分析仪器配置 Analyzer type
1	转炉热端（高温） Hot-side of converter(high temperature)	CO:0-100% O_2:0-3% CO_2:0-50% H_2:0-5%	CI-PC6500 Ex CI-PC66 Ex CI-PC1100 Ex
2	转炉冷端（风机后） Cold-side of converter(coal gas fan outlet)	CO:0-100% O_2:0-3% CO_2:0-50%	CI-PC6500 Ex CI-PC66 Ex
3	煤气柜前Coal gas cabinet inlet	O_2:0-3%	CI-PC6500 Ex CI-PC66 Ex
4	煤气柜后（电除尘器前） Coal gas cabinet outlet(electrostatic precipitator inlet)	O_2:0-3%	CI-PC6500 Ex CI-PC66 Ex
5	煤气柜顶Top of coal cabinet	CO:0-300ppm	CI-PC6500 Ex CI-PC66 Ex

高炉煤气过程气体检测点及分析仪器配置情况表
Parameter list of gas detecting point and analyzer configuration in blast furnace coal gas

序号 NO.	检测点名称 Name of detecting point	测量组分及量程 Measuring component and range	分析仪器配置 Analyzer type
1	粗煤气、净煤气或热值 Coarse coal gas or pure gas	CO:0-40%	CI-PC21/CI-PC68-1 Ex CI-PC1100 Ex
		CH_4:0-1%	
		CO_2:0-40%	
		H_2:0-5%	
		O_2:0-3%	
2	热风炉废气 The waste gas of hot wing furnace	CO:0-2000ppm	CI-PC6500 Ex CI-PC66 Ex
		O_2:0-1%	

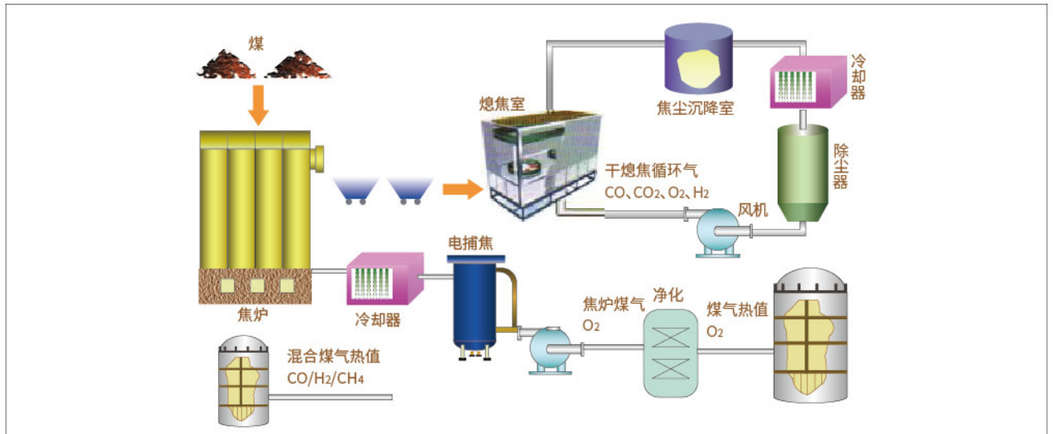
高炉喷煤过程气体检测点及分析仪器配置情况表
Parameter list of gas detecting point and analyzer configuration in blast furnace spray coal

序号 NO.	检测点名称 Name of detecting point	测量组分及量程 Measuring component And range	分析仪器配置 Analyzer type
1	制粉布袋出口 Coal mill bag filter outlet	CO:0-2000ppm	CI-PC6500 Ex CI-PC66 Ex
		O_2:0-21%	
2	磨煤机入口 Mill coal inlet	O_2:0-21%	CI-PC6500 Ex CI-PC66 Ex
3	煤粉仓 coal dust bin	CO:0-2000mg/m³	CI-PC21
4	烟囱烟气排放连续监测系统 (烧结机脱硫脱硝、球团脱硫脱硝、出铁场二次除尘、烧结机机尾二次除尘) Chimney flue gas emission continuous monitoring system (desulfurization and denitration of sintering machine, desulfurization and denitration of pellet, tapping yard secondary dust removal, secondary dust removal at the tail of sintering machine)	SO_2:0-5000 mg/m³,超低0-100/200mg/m³	CI-PC2200 CI-PC66 Ex CI-PC6500 Ex CI-PC21 CI-XT6000温压流仪 Temperature/ pressure/ flow speed meter CI-PC168湿度仪 Humidity meter
		NOx:0-2000 mg/m³,超低0-100/200mg/m³	
		O_2:0-25%	
		CO:0-5000ppm(Optional)	
		CO_2:0-20%(Optional)	
		Dust:0-500mg/m³,超低0-10/30mg/m³	
		Temp:0-300P	
		Pressure:-4-4kpa	
		Flow:0-40m/s	
		Humidity:0-20%	
5	烟气脱硝氨逃逸检测 Ammonia leakage monitorring in flue gas denitration	NH_3:0-15/30mg/m³	CI-PC6500 Ex CI-PC66 Ex

矿山生产过程测点及分析系统选型表
Detection point of messuring in mine production procedure and analysis system of configuration parameter list of gas detecting point and analyzer configuration in mine production

序号 NO.	检测点名称 Name of detecting point	测量组分及量程 Measuring component and rang	分析仪器配置 Analyzer type
1	袋收尘 Bag filter	CO:0-2000ppm	CI-PC6500 Ex /CI-PC66 Ex
2	矿山磨机 Mine mill	CO:0-2000ppm	CI-PC6500 Ex /CI-PC66 Ex
3	矿粉仓 Mine dust bi	CO:0-2000ppm	CI-PC6500 Ex /CI-PC66 Ex

焦化工业流程及气体分析示意图
The schematic diagram of technics process and gas detecting in coke industry



焦化检测点及分析系统选型表
Parameter list of gas detecting point and analyzer configuration in coke industry

序号 NO.	检测点名称 Name of detecting point	测量组分及量程 Measuring component and rang	分析仪器配置 Analyzer type
1	电捕焦后 Electric catching coker outlet	O_2:0-3%	CI-PC6500 Ex
2	干熄焦(风机后) Dru quenching(coal gas fan outlet)	CO:0-20%, O_2:0-21% CO_2:0-30%, H_2:0-10%	CI-PC6500 Ex /CI-PC1100 Ex
3	煤气(混合煤气) Coal gas (mixed coal gas)	CO:0-40%, CH_4:0-10% H_2:0-40%	CI-PC6500 Ex /CI-PC1100 Ex

第四部分 过程分析系统在空气质量监测的应用

Section 4 Application of process analysis system in air quality monitoring

一、过程分析系统在空气质量监测的应用

选型产品名称：

CI-XT5100固定污染源VOCs在线监测系统

概述：

针对重点污染行业石油化工、工业涂装、包装印刷等固定污染源VOCs排放亟待监测的迫切需求，结合国家出台相关VOCs政策、标准及各行业排放标准情况而推出的基于FID检测技术的CEMSxxxVOC挥发性有机物VOCs排放连续在线监测系统，可实时在线连续监测烟气中的的挥发性有机物（包括甲烷、非甲烷总烃、苯系物及特征因子）及温压流湿等辅助参数，统计污染源排放速率、排放总量等，从而对测量到的数据进行有效管控。

1、Application of process analysis system in air quality monitoring

Selected product name:

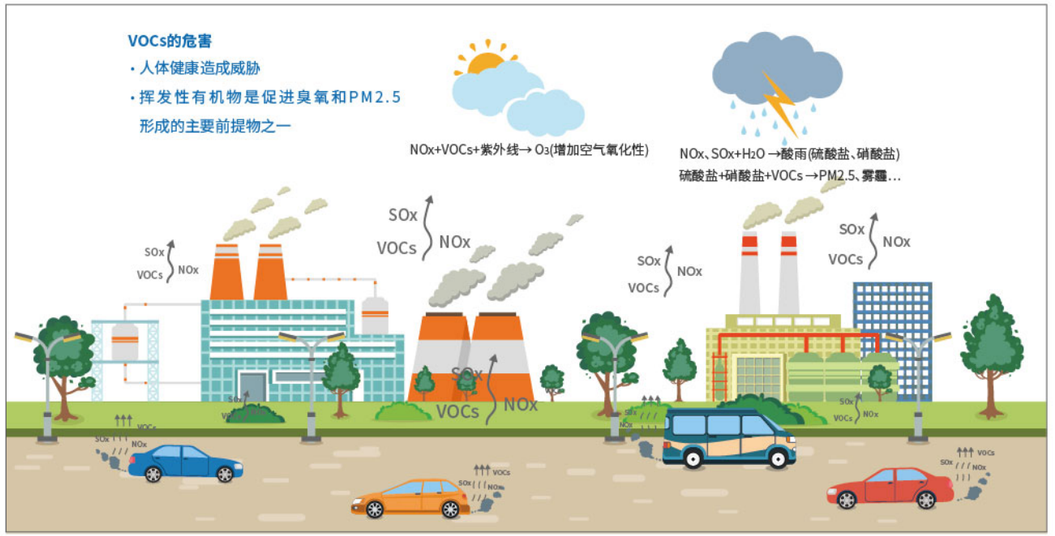
CI-XT5100 Fixed Pollution Source VOCS Online Monitoring System

Overview:

In response to the urgent need to monitor the VOCs emissions of fixed pollution sources in key polluting industries, such as petrochemicals, industrial coatings, packaging and printing, etc., combined with the relevant VOCs policies and standards issued by the country and the emission standards of various industries, the CEMSxxxVOC volatile organic compound continuous online monitoring system for VOCs emission based on FID detection technology are launched, which can continuously monitor the volatile organic compounds (including methane, non-methane total hydrocarbons, benzene series and characteristic factorsson) in the flue gas in real time and online, and auxiliary parameters such as temperature, pressure, flow, humidity, statistics of pollution source emission rate, total emission, etc., so as to effectively control the measured data.

VOCs的危害

The hazards of VOCs



固定污染源废气VOCs连续监测系统选型表

Selection table of VOCs continuous monitoring system for fixed pollution source exhaust gas

序号 NO.	检测点名称 Name of detecting point	测量组分及量程 Measuring component And range	分析仪器配置 Analyzer type
1	固定污染源废气VOCs连续监测系统 VOCs continuous monitoring system for fixed pollution source exhaust gas	非甲烷总烃 0-50/100/200/1000/5000mg/m³	CI-XT9200 CI-XT6000温压流仪 Temperature/pressure/ flow speed meter CI-PC18-H湿度仪 Humidity meter CI-PC6500
		苯系物 0-50/100/200mg/m³	
		O2:0-25%	
		Temp:0-300P	
		Pressure:-4-4kpa	
		Flow:0-40m/s	
		Humidity:0-20%	
		H2S:0-200mg/m³	
		HF:0-100mg/m³	

二、过程分析系统在烟气连续监测的应用

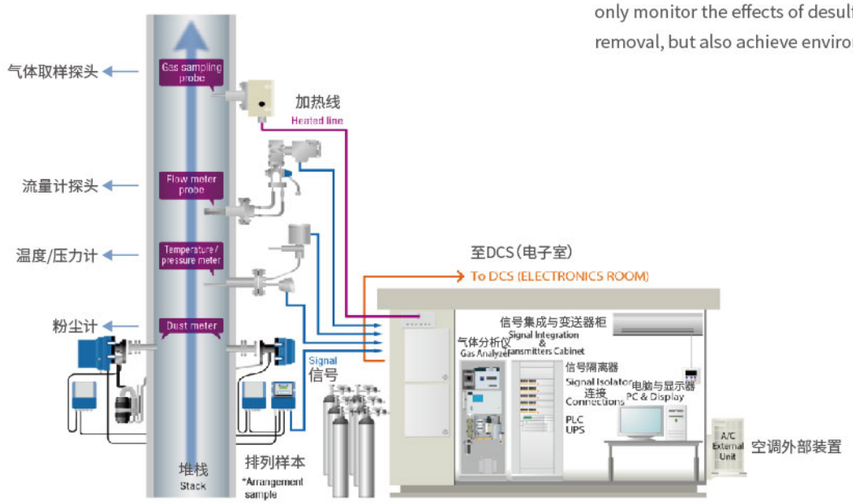
概述：

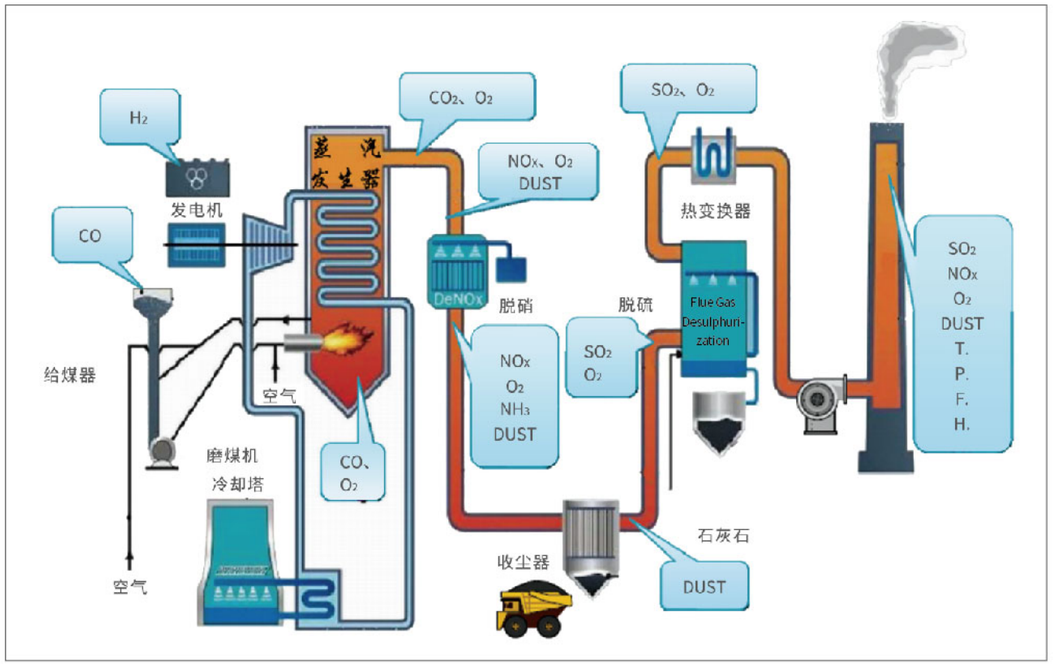
建材、火电、冶金、化工等各种锅炉、工业炉窑、焚烧炉等废气的排放对环境造成严重污染，对排放的烟气进行连续监测，不但可以监测脱硫及除尘效果，还可以达到环境保护的目的。

2、Application of process analysis system in continuous flue gas monitoring

Overview:

Exhaust gas emissions from various industries such as boilers, industrial furnaces, incinerators, building materials, thermal power, metallurgy, and chemical industries cause serious pollution to the environment. Continuous monitoring of the flue gas emissions can not only monitor the effects of desulfurization and dust removal, but also achieve environmental protection goal.





烟气脱硫及排放过程气体检测点及分析仪器配置情况表

Parameter list of gas detecting point and analyzer configuration in flue gas desulpliurization and continuous emission monitoring

序号 NO.	检测点名称 Name of detecting point	测量组分及量程 Measuring component and rang	分析仪器配置 Analyzer type
1	烟气脱硝前烟气连续监测 Continuous monitoring in flue gas denitration inlet	NOx:0-5000mg/m³	CI-PC2200
		O2:0-21%	
2	烟气脱硝后烟气连续监测 Continuous monitoring in flue gas denitration outlet	NOx:0-2000mg/m³	CI-PC2200 CI-PC66 CI-XT6000温压流仪 Temperature/pressure/ flow speed meter CI-PC168湿度仪 Humidity meter
		O2:0-21%	
		NH3:0-50mg/m³	
		Dust:0-500mg/m³	
		Temp:0-300°C	
		Pressure:0-4kpa	
		Flow rate:0-40m/s	

序号 NO.	检测点名称 Name of detecting point	测量组分及量程 Measuring component and rang	分析仪器配置 Analyzer type
3	烟气脱硫前烟气连续监测 Continuous monitoring in flue gas denitration inlet	SO_2:0-5000mg/m³ NOx:0-5000mg/m³ O_2:0-21% Dust:0-500mg/m³ Temp:0-300°C Pressure:0-4kpa Flow rate:0-40m/s	CI-PC2200 CI-XT6000温压流仪 Temperature/pressure/ flow speed meter CI-PC168湿度仪 Humidity meter
4	烟气脱硫后烟气连续监测 Continuous monitoring in flue gas desulfurization outlet	SO_2:0-100/200mg/m³(超低) NOx:0-100/200mg/m³(超低) O_2:0-21% Dust:0-10/30mg/m³(超低) Temp:0-300°C Pressure:0-4kpa Flow rate:0-40m/s	CI-PC2200 CI-XT6000温压流仪 Temperature/pressure/ flow speed meter CI-PC168湿度仪 Humidity meter
5	烟囱烟气排放连续监测 Continuous emission monitoring in stack	SO_2:0-100/200mg/m³(超低) NOx:0-100/200mg/m³(超低) O_2:0-21% H_2O:0-40% Dust:0-10/30mg/m³(超低) Temp:0-300°C Pressure:0-4kpa Flow rate:0-40m/s	CI-PC2200 CI-XT6000温压流仪 Temperature/pressure/ flow speed meter CI-PC168湿度仪 Humidity meter

第五部分 分析小屋成套装置
Section 5 Analysis house

分析小屋成套装置：

分析小屋是集在线分析仪表的组合、成套和安装应用于一体，并配备有供电、接线、通风、照明电路及分析仪表所需载气、标准气、驱动气、控制气等基本设施，用于对被测介质进行连续自动的现场测量、分析和控制。成套的分析小屋能满足在线分析系统所要求的特殊环境条件（如温度、湿度和防尘防爆），为在线分析仪表的现场安装、投运和维护提供极大方便。

广泛应用于石化、化工、冶金、环保、建材、电站、制药等领域。

分析小屋本体结构：

1、分析小屋尺寸：2000~8000（L）×2500（W）×2700（H）mm，其它尺寸可特殊设计；

2、防爆等级：ExdIICT4；

3、基本结构：采用型钢框架结构，外墙及屋顶采用π型板拼装；

4、底座为工字梁滑道型，底座和骨架为金属结构，有足够的强度。顶部配有整体吊装耳环；

5、墙体：内外钢板为不锈钢或镀锌钢板喷塑板材料；内外墙及吊顶和屋顶之间填阻燃型聚氨酯保温材料。墙体厚度为75mm；

6、门窗：分析小屋设有外开型门，小屋面积小于等于9m²时设一个门，大于9m²时设置2个门，尺寸为900mm×2000mm，带有安全可视窗，带阻尼限位闭门器和安全逃生锁，有外锁机构。门窗玻璃采用抗爆安全玻璃；

Analysis complete set cabin:

The analysis cabin is a combination of online analysis instruments, complete sets, installation and application, and is equipped with power supply, wiring, ventilation, lighting circuit and basic facilities required by analysis instruments, such as carrier gas, standard gas, driving gas, and control gas. It' s uses for continuous and automatic on-site measurement, analysis and control of the measured medium. The complete analysis room can be fully meet the special environmental conditions (such as temperature, humidity, dust and explosion protection) required by the online analysis system provide great convenience for the on-site installation, commissioning and maintenance of the online analysis instrument. Widely used in petrochemical, chemical, metallurgical, environmental protection, building materials, power stations, pharmaceuticals and other fields.

Structure:

1. Size:2000~8000(L)×2500(W)×2700(H)mm, other size specially designed;
2. Explosive-proof grade: ExdIICT4;
3. Basic structure: structural steel frame; outside wall and roof are made of π type plate;
4. House foundation is "工" type slide rail. Both the foundation and the frame are made of metal which has great strength. Lifting rings are designed on the roof;
5. Wall：the wall is made of stainless steel plate or galvanized steel sheet spraying plastics material; the space between the wall outside and inside as well as the space between the suspended ceiling and roof are full filled with polyurethane insulation material which is inflaming retarding. The thickness of the wall is 75mm;
6. Window & door: outside opened door; when the house area is ⩽9m², one door is designed. When the house area is bigger than 9m², two doors are designed. The size of the door is 900mm×2000mm. The door is equipped with a visual window, damping-limit door shutter and safe escaping locker and can be locked outside. The window is made of explosion-proof glass;

7、地面：地板采用防滑花纹钢板，可铺设防滑、阻燃、防静电地板；

8、屋内：配分析仪、蒸汽管路、上下水管路等、防爆配电箱、报警仪；

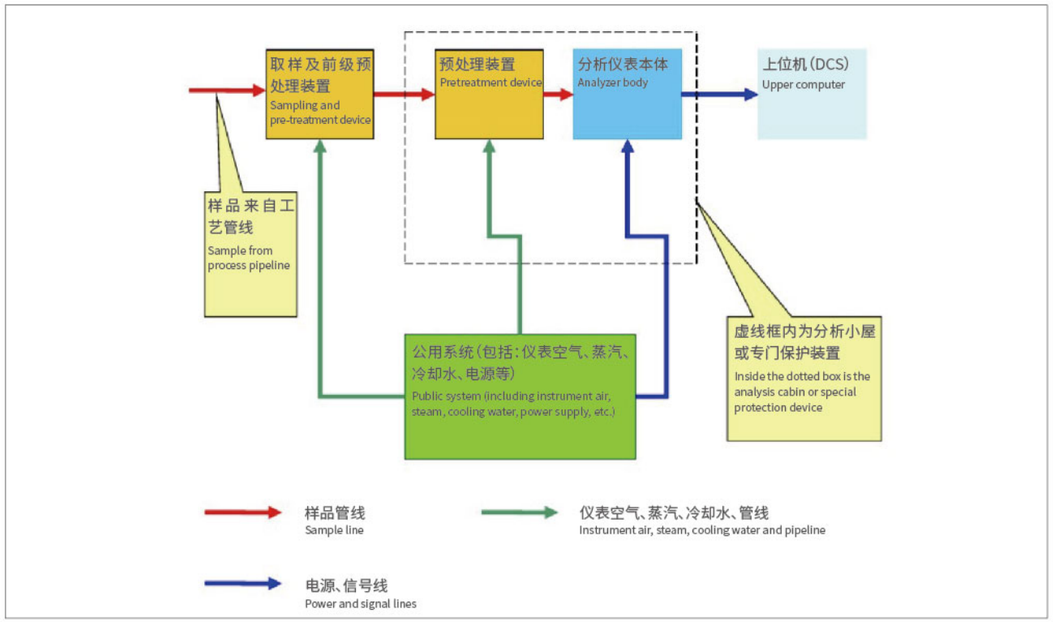
9、屋外：样气预处理系统；标准气、载气及钢瓶固定架；防爆接线箱；

10、电气设施：所有电气设备均为防爆产品，防爆级别为ExdIICT4。包括防爆接线箱（公用电源、仪表电源、模拟信号、数字信号）、防爆开关、防爆荧光灯、防爆应急灯、门前及小屋外防爆灯、防爆排风扇、防爆冷暖型空调、防爆维修电源插座、安全控制系统（含：可燃、毒性、欠氧检测及声光报警）。

7. Floor: made of anti-skidding riffled plate, conductive floor which is anti-skidding and inflaming retarding can be used if needed;
8. Indoors: equipped with analyzer, steam line, water line, explosion proof distribution box, alarms etc;
9. Outside doors: sample gas pretreating system; fixing bracket for standard gas bottles/carrier gas bottles;explosion-proof Connection box.
10. Electric utility: all electric utilities areexplosion proof with a grade of ExdIICT4 including explosion proof connection box(common power, power source, analog signal, digital signa), explosion-proof switches, explosion-proof fluorescent lamp/emergency lamp, explosion-proof light in front of the door and outside the house, explosion-proof fans, explosion-proof air condition, explosion-proof sockets, safety control system (which includes combustible/toxic gas detector, oxygen lack detector and audible and visual alarm).

在线分析系统的构成

Composition of on-line analysis system



第六部分 气体分析仪器
Section 6 Gas analyzer

原位探头直插式激光分析仪 CI-PC66系列
In-situ laser gas analyzer with in-line probe CI-PC66 series

光学分析仪系列
Optical analyzer series

CI-PC66原位探头直插式激光分析仪是一款高端、专业的激光器分析仪，适用于多种行业和环境（如燃煤锅炉SCR、SNCR脱销工艺）中氨逃逸量的检测。
The in-situ laser analyzer with in-line probe, which is a high-end and professional laser analyzer.

产品特点 Product features
1.原位测量，无需复杂的采样和预处理系统，测量准确，响应速度快，实时性高；
In-situ measurement, no sampling and pre-processing system is required, the measurement is accurate, the response speed is fast, and the real-time performance is high;
2.直插探头采用一体式结构设计，方便安装、维护和对光调试。
The in-line probe adopts an integrated structure design, which is convenient for installation, maintenance, and light adjustment.

气体 GAS	氧O_2 氨气 NH_3 氟化氢HF 氯化氢HCL 二氧化硫SO_2 一氧化氮NO 硫化氢 H_2S 一氧化碳 CO 二氧化碳 CO_2…
测量范围 measuring range	百分级(%) 微量级(ppm)
应用领域 application fields	安全应用 Safe application 质量控制 Quality control 过程控制 Process control 燃烧控制 Combustion control
传感器技术 sensor technology	可调谐半导体激光TDLAS Tunable semiconductor laser TDLAS

激光气体分析仪 CI-PC68系列
Laser gas analyzer CI-PC68 series

光学分析仪系列
Optical analyzer series

CI-PC68是利用最新的固态可调谐二极管激光（TDL）技术的一种非接触式高性能的光学分析仪。
CI-PC68 is a non-contact high-performance optical analyzer using the latest solid-state tunable diode laser (TDL) technology.

产品特点 Product features
1.耐受腐蚀性化学气体；
Corrosion resistant chemical gases;
2.耐受极湿环境甚至液态水；
Tolerate extremely humid environments or even liquid water;
3.维护量低；
Low maintenance;
4.预防性维护诊断；
Preventive maintenance diagnosis;
5.加热的光学表面防止结露。
Heated optical surface to prevent condensation.

气体 GAS	氧O_2 氨气 NH_3 氟化氢HF 氯化氢HCL 二氧化硫SO_2 一氧化氮NO 硫化氢 H_2S 一氧化碳 CO 二氧化碳 CO_2…
测量范围 measuring range	百分级(%) 微量级(ppm)
应用领域 application fields	安全应用 Safe application 过程控制 Process control
传感器技术 sensor technology	可调谐半导体激光TDLAS Tunable semiconductor laser TDLAS

原位激光气体分析仪 CI-PC6500系列
In situ laser gas analyzer CI-PC6500 series

光学分析仪系列
Optical analyzer series

高性能单路（对射式）激光气体监测仪，是利用最新的可调谐二极管激光（TDL）技术的一种高性能的光学分析仪。
High performance single channel (opposed) laser gas monitor is a high-performance optical analyzer using the latest tunable diode laser (TDLs) technology.

产品特点 Product features
1.无交叉干扰；
No cross interference;
2.采用与测量气体相符的激光波长，不受其它气体干涉影响；
The laser wavelength consistent with the measured gas is adopted, which is not affected by the interference of other gases;
3.精度高；High precision;
4.稳定性；Stability;
5.零点漂移：±2%F.S/6个月；
Zero drift: ± 2% f.s/6 months;
6.内置EPC吹扫气体流量智能控制。
Built in EPC purge gas flow intelligent control.

气体 GAS	氧 O_2 水 H_2O 氨气 NH_3 甲烷 CH_4 氯化氢 HCL 硫化氢 H_2S 一氧化碳 CO 二氧化碳 CO_2 二氧化硫SO_2 …
测量范围 measuring range	百分级(%) 微量级(ppm)
应用领域 application fields	安全应用 Safe application 质量控制 Quality control 过程控制 Process control 燃烧控制 Combustion control
传感器技术 sensor technology	可调谐半导体激光TDLAS Tunable semiconductor laser TDLAS

红外线气体分析仪 CI-PC21
Infrared gas analyzer CI-PC21

光学分析仪系列
Optical analyzer series

采用先进的单光源不分光技术，单管隔半气室及高可靠性的微音薄膜检测器。
It adopts advanced single light source non splitting technology, single tube semi air compartment and high reliability micro sound film detector.

产品特点 Product features
1.特殊设计的气室吸收器，窄带滤光片抗干扰能力强，检测准确度高；
Specially designed gas chamber absorber,narrow-band filter has strong anti-interference ability and high detection accuracy;
2.高稳定性、高可靠性和高选择性的性红外光源；
Infrared light source with high stability,high reliability and high selectivity;
3.测量气室镜面镀金，耐腐蚀。
The mirror surface of the measuring chamber is gold-plated and corrosion-resistant.

气体 GAS	氨气 NH_3 甲烷 CH_4 一氧化氮NO 硫化氢 H_2S 一氧化碳 CO 二氧化碳 CO_2 二氧化硫SO_2…
测量范围 measuring range	百分级(%) 微量级(ppm)
应用领域 application fields	安全应用 Safe application 质量控制 Quality control 过程控制 Process control 燃烧控制 Combustion control
传感器技术 sensor technology	NDIR非分散式红外（双光束）测量 NDIR non dispersive infrared (dual beam) measurement

紫外光谱分析仪 CI-PC2200
Ultraviolet spectrum analyzer CI-PC2200

光学分析仪系列
Optical analyzer series

紫外光谱分析仪是我公司针对国内外环保、工业控制现场在线气体分析自主研发的一款烟气分析仪产品。
UV spectrum analyzer is a flue gas analyzer product independently developed by our company for on-line gas analysis on environmental protection and industrial control sites at home and abroad.

产品特点 Product features
1.采用先进紫外吸收光谱技术和化学计量学算法，测量精度完全不受粉尘与水的影响；
Using advanced UV absorption spectroscopy technology and chemometrics algorithm, the measurement accuracy is completely unaffected by dust and water;
2.实现NO、NO_2同时测量；
Realize simultaneous measurement of no and NO_2;
3.无光学运动部件，抗振动。
No optical moving parts, anti vibration.

气体 GAS	二氧化硫SO_2、一氧化氮NO、二氧化氮NO_2、硫化氢H_2S、氯气Cl_2、氨气NH_3 …
测量范围 measuring range	百分级(%) 微量级(ppm)
应用领域 application fields	过程控制 Process control 环保检测 Environmental protection detection
传感器技术 sensor technology	紫外差分DOAS UV Differential DOAS

氩中微量氮&微量氧分析仪 CI-PC2001
Argon trace nitrogen & trace oxygen analyzer CI-PC2001

光学分析仪系列
Optical analyzer series

CI-PC2001专门设计用于连续监测Ar、He或二者混合气中的N_2，全方位满足ASU设备操作员的需求。
CI-PC2001 is specially designed for continuous monitoring of N_2 in AR, he or their mixture to meet the needs of ASU equipment operators in all aspects.

产品特点 Product features
1.搭载非损耗新型等离子体放电技术，可提高选择性及高度可靠地测量结果；
Equipped with a new non loss plasma discharge technology, it can improve the selectivity and highly reliable measurement results;
2.EPC流量控制系统可保证低流量消耗及稳定的读数。
EPC flow control system can ensure low flow consumption and stable reading.

气体 GAS	氮N_2
测量范围 measuring range	微量级(ppm)
应用领域 application fields	质量控制 Quality control
传感器技术 sensor technology	等离子检测器 Plasma detector

高含量氧分析仪 CI-PC81
High oxygen analyzer CI-PC81

电化学分析仪系列
Electrochemical analyzer series

CI-PC81为高规格型氧气分析仪，可为过程控制提供无与伦比的精度、稳定性和可靠性，堪称高氧检测的新标杆。
CI-PC81 is a high specification oxygen analyzer, which can provide unparalleled accuracy, stability and reliability for process control. It can be called a new benchmark for high oxygen detection.

产品特点 Product features
1.采用厚膜共烧技术，传感器使用寿命可长达10年；
Using thick film co firing technology, the service life of the sensor can be up to 10 years;
2.具有自动校准功能，可自动完成对分析仪的校准（可选）；
With automatic calibration function, the analyzer can be calibrated automatically (optional);
3.便捷的数据存储功能。
Convenient data storage function.

气体 GAS	氧O_2
测量范围 measuring range	百分级(%)
应用领域 application fields	质量控制 Quality control 过程控制 Process control
传感器技术 sensor technology	3D离子流传感器 3D ion flow sensor

氧分析仪 CI-PC11
Oxygen analyzer CI-PC11

电化学分析仪系列
Electrochemical analyzer series

CI-PC11采用当今世界最先进的氧化锆传感器技术，开创性的实现了在线检测无需基准气体（不受环境氧浓度影响）。
CI-PC11 adopts the most advanced zirconia sensor technology in the world, and creatively realizes on-line detection without reference gas (not affected by ambient oxygen concentration).

产品特点 Product features
1.满足工业过程控制中快速响应和高精度控制的要求，同时具有完整的自我诊断功能；
Meet the requirements of rapid response and high-precision control in industrial process control, and have complete self diagnosis function;
2.传感器互换性好、不通电不消耗，有效延长寿命。
The sensor has good interchangeability, no power consumption and effectively prolongs its service life.

气体 GAS	氧O_2
测量范围 measuring range	百分级(%)
应用领域 application fields	质量控制 Quality control 过程控制 Process control
传感器技术 sensor technology	氧化锆传感器 zirconia sensor

微量氧分析仪 CI-PC91
Micro-oxygen analyzer CI-PC91

电化学分析仪系列
Electrochemical analyzer series

CI-PC91完全采用自主知识产权的氧传感器为测量单元，是一款基于微控传感技术为核心的智能分析仪。
CI-PC91 completely adopts the oxygen sensor with independent intellectual property rights as the measurement unit. It is an intelligent analyzer based on micro control sensing technology.

产品特点 Product features
1.高精度的温度自动补偿，消除温度对测量精度的影响；
High precision automatic temperature compensation eliminates the influence of temperature on measurement accuracy;
2.过压及超量程保护功能；
Overvoltage and over range protection function;
3.高精度的压力自动补偿，消除压力对测量精度的影响。
High precision automatic pressure compensation eliminates the influence of pressure on measurement accuracy.

气体 GAS	氧O_2
测量范围 measuring range	微量级(ppm)　痕量级(ppb)
应用领域 application fields	质量控制 Quality control 过程控制 Process control
传感器技术 sensor technology	电化学气体传感器 Electrochemical gas sensor

氧/氮分析仪 CI-PC85-1
Oxygen / Nitrogen analyzer CI-PC85-1

电化学分析仪系列
Electrochemical analyzer series

CI-PC85-1基于离子流传感技术研制的新一代分析仪，其具有坚固的防爆结构，符合爆炸性气体及混合物形成的危险环境中使用。
CI-PC85-1 is a new generation analyzer developed based on ion flow sensing technology. It has a solid explosion-proof structure and is suitable for use in hazardous environments formed by explosive gases and mixtures.

产品特点 Product features
1.分析仪采用新型长寿命的离子流氧传感器，精度高、响应速度快等特点；
The analyzer adopts a new long-life ion flow oxygen sensor, which has the characteristics of high precision and fast response;
2.高精度的温度自动补偿系统，减小环境温度对测量精度的影响。
High precision automatic temperature compensation system reduces the influence of ambient temperature on measurement accuracy.

气体 GAS	氧O_2
测量范围 measuring range	百分级(%)　微量级(ppm)
应用领域 application fields	安全应用 Safe application 过程控制 Process control
传感器技术 sensor technology	离子流传感器 Ion flow sensor

防爆型氧量分析仪 CI-PC951-1
Explosion proof oxygen analyzer CI-PC951-1

电化学分析仪系列
Electrochemical analyzer series

CI-PC951-1防爆型氧量分析仪能在多种环境下进行氧浓度的准确测量。
The CI-PC951-1 explosion-proof oxygen analyzer can accurately measure the oxygen concentration in a variety of environments.

产品特点 Product features
1.采用触摸按键技术，操作简便，按键使用寿命长；
Touch key technology is adopted, which is simple to operate and has long service life;
2.以微处理器为核心，以电化学气体传感器为测量单元，具有智能性、稳定性好，精度高、校准周期长等特点。
With microprocessor as the core and electrochemical gas sensor as the measurement unit, it has the characteristics of intelligence, good stability, high precision and long calibration cycle.

气体 GAS	氧O_2
测量范围 measuring range	百分级(%)
应用领域 application fields	安全应用 Safe application 过程控制 Process control
传感器技术 sensor technology	电化学气体传感器 Electrochemical gas sensor

防爆型氧量分析仪 CI-PC951-2
Explosion proof oxygen analyzer CI-PC951-2

电化学分析仪系列
Electrochemical analyzer series

CI-PC951-2氧分析仪的外壳采用隔爆设计，它采用Ex元件的防爆标志为Ex d IIC T6 Gb，为整体隔爆结构。
The shell of CI-PC951-2 oxygen analyzer adopts explosion-proof design. It adopts Ex components with explosion-proof mark of Ex d IIC T6 Gb, which is an integral explosion-proof structure.

产品特点 Product features
1.将微控制器与数字处理技术相结合，抗交叉干扰、稳定可靠；
The combination of microcontroller and digital processing technology is anti-interference, stable and reliable;
2.采用电化学传感器，精度高、稳定性好；
Electrochemical sensor is adopted with high precision and good stability;
3.采用触摸按键技术，操作简便，按键使用寿命长。
Touch key technology is adopted, which is simple to operate and has long service life.

气体 GAS	氧O_2
测量范围 measuring range	百分级(%)
应用领域 application fields	安全应用 Safe application 过程控制 Process control
传感器技术 sensor technology	电化学气体传感器 Electrochemical gas sensor

空分、液氧/氮纯度分析色谱仪 CI-PC9260
Air separation and liquid oxygen / nitrogen purity analysis chromatograph CI-PC9260

色谱系列
Chromatography series

CI-PC9260新型网络化在线气相色谱仪是“昶艾”公司最新推出的一款带有程序升温、降温功能在线气相色谱仪。
The new network on-line chromatograph is a newly introduced one of the on-line gas chromatographs with the function of programmed heating and cooling.

产品特点 Product features
1.加载先进EPC气路控制技术，使其自动化水平和整体性能得到了前所未有的提高；
Loading advanced EPC gas circuit control technology, so that its automation level and overall performance have been unprecedentedly improved;
2.低维护需求和低持有成本；
Low maintenance requirements and low holding costs;
3.快速响应和恢复功能，可确保良好的操作稳定性。
Fast response and recovery functions ensure good operational stability.

气体 GAS	多种气体 Multiple gases
测量范围 measuring range	百分级 (%)　微量级 (PPm) 痕量级 (ppb)
应用领域 application fields	安全应用 Safe application 质量控制 Quality control 过程控制 Process control
传感器技术 sensor technology	TCD　FID　PDHID　PED

在线气相色谱仪 CI-PC9200
VOCs CI-PC9200 Series Chromatograph

色谱系列
Chromatography series

CI-PC9200系列产品包括CI-PC9200-A/B/C这三款仪表，分别针对非甲烷总烃/苯系物等各类常见VOCs进行测量。
The CI-PC9200 online gas chromatograph includes three instrument, CI-PC9200-A/B/C, which measure various common VOCs such as non-methane total hydrocarbons and benzene series.

产品特点 Product features
1.采用EPC技术进行载气压力控制，控压精确稳定，控压精度优于±0.1kpa；
Using EPC technology for carrier gas pressure control, the pressure control is accurate and stable, and the pressure control accuracy is ±0.1kpa;
2.采用EFC技术进行氢气和空气流量控制，控流精度优于0.5%FS；
Using EFC technology for hydrogen and air flow control, the control accuracy is better than 0.5%FS;
3.柱箱控制精度优于±0.1℃。
Oven control accuracy is better than ±0.1℃.

气体 GAS	多种气体 Multiple gases
测量范围 measuring range	百分级 (%)　微量级 (PPm) 痕量级 (ppb)
应用领域 application fields	环境检测 Environmental detection
传感器技术 sensor technology	火焰离子化 FID Flame ionization FID

防爆工业气相色谱仪 SP 1000E
Explosion-proof industrial gas chromatograph SP 1000E

色谱系列
Chromatography series

SP1000E防爆工业气相色谱仪采用高集成度工业级芯片、总线技术、以太网技术、微流量气体控制技术以及数据处理软件。
The SP1000E explosion-proof industrial gas chromatograph adopts highly integrated industrial-grade chips, bus technology, Ethernet technology, micro-flow gas control technology and data progressing software.

产品特点 Product features
1.自带流路控制系统，可实现多流路自动进样，最多可扩展60个流路；
With its own flow path control system, it can realize multi flow path automatic injection, and can expand 60 flow paths at most;
2.配备内置工业级电脑，内嵌触摸液晶显示器，显示直观、操作方便。
Equipped with built-in industrial computer, built-in touch liquid crystal display, intuitive display, easy to operate.

气体 GAS	多种气体 Multiple gases
测量范围 measuring range	百分级 (%)　微量级 (PPm)
应用领域 application fields	安全应用 Safe application 质量控制 Quality control 过程控制 Process control
传感器技术 sensor technology	TCD　PDHID　PED

热导气体分析仪 CI-PC511
Thermal conductivity gas analyzer CI-PC511

热导分析仪系列
Thermal conductivity analyzer series

CI-PC511采用热导率(TCD)为测量单元的气体分析仪,可对Ar、He、N_2及H_2进行业内顶级的测量。
CI-PC511 adopts the gas analyzer with thermal conductivity (TCD) as the measurement unit, which can measure AR, he, N_2 and H_2 at the top of the industry.

产品特点 Product features
1.确保ASU操作员进行真正业内顶尖的测量，保证漂移精度、线性及可重复性；
Ensure that ASU operators conduct truly industry-leading measurements to ensure drift accuracy, linearity and repeatability;
2.专注于单路气体测量，是ASU操作员分开测量每路气体的理想之选。
Focusing on single gas measurement, it is an ideal choice for ASU operators to measure each gas separately.

气体 GAS	多种气体 Multiple gases
测量范围 measuring range	百分级 (%)
应用领域 application fields	质量控制 Quality control 过程控制 Process control
传感器技术 sensor technology	热导原理 TCD Thermal conductivity principle TCD

防爆气体分析仪 CI-PC55-1
Explosion-proof gas analyzer CI-PC55-1

热导分析仪系列
Thermal conductivity analyzer series

CI-PC55-1分析仪外壳采用隔爆设计，它采用Ex元件防爆标志为Exd IIB T6 Gb，为整体隔爆结构。
The explosion-proof gas analyzer is designed to be explosion-proof. The explosion-proof sign of Ex element is Ex d IIB T6 Gb, which is the integral explosion-proof structure.

产品特点 Product features
1.将微控制器与数字处理技术相结合，抗交叉干扰、稳定可靠；
The combination of micro controller and digital processing technology can prevent cross interference, and is stable and reliable;
2.数据存储功能：支持U盘和SD卡存储数据；
Data storge function: support U disk and SD card to store data;
3.通讯功能：采用RS485（标配）/ RS232（选配）。
Communication：RS485(standard) / RS232.

气体 GAS	多种气体 Multiple gases
测量范围 measuring range	百分级 (%)
应用领域 application fields	质量控制 Quality control 过程控制 Process control
传感器技术 sensor technology	热导原理 TCD Thermal conductivity principle TCD

防爆气体分析仪 CI-PC551-2
Explosion-proof gas analyzer CI-PC551-2

热导分析仪系列
Thermal conductivity analyzer series

CI-PC551-2分析仪的外壳采用隔爆设计，它采用Ex元件的防爆标志为Ex d IIC T6 Gb，为整体隔爆结构。
The explosion-proof gas analyzer is designed to be explosion-proof. The explosion-proof sign of Ex element is Ex d IIC T6 Gb, which is the integral explosion-proof structure.

产品特点 Product features
1.可对Ar（氩气）、He（氦气）和N_2（氮气）的可靠测量，具有高抗交叉干扰和稳定性；
It can reliably measure AR (argon), he (helium) and N_2 (nitrogen), and has high anti cross interference and stability;
2.更长的标定间隔及无参考气体需求，最大程度降低总持有成本。
Longer calibration interval and no reference gas demand to minimize the total holding cost.

气体 GAS	多种气体 Multiple gases
测量范围 measuring range	百分级 (%)
应用领域 application fields	质量控制 Quality control 过程控制 Process control
传感器技术 sensor technology	热导原理 TCD Thermal conductivity principle TCD

氢气分析仪 CI-PC1100
Hydrogen analyzer CI-PC1100

热导分析仪系列
Thermal conductivity analyzer series

CI-PC1100为多元混合气体中氢测量设计的分析仪，可对干熄焦余热回收、炉顶煤气等氢的精确测量。
CI-PC1100 is an analyzer designed for measuring hydrogen in multicomponent mixed gas, which can accurately measure hydrogen such as CDQ waste heat recovery and furnace top gas.

产品特点 Product features
1.将微控制器与数字处理技术相结合，抗交叉干扰、稳定可靠；
The combination of micro controller and digital processing technology can prevent cross interference, and is stable and reliable;
2.128×164液晶屏视窗显示直观，内容丰富；
It has visualized show and abundant content with a 128×64 LCD display window;
3.数据存储功能：支持U盘和SD卡存储数据。
Data storge function: support U disk and SD card to store data.

气体 GAS	氢H_2
测量范围 measuring range	百分级 (%)
应用领域 application fields	安全应用 Safe application 过程控制 Process control
传感器技术 sensor technology	热导原理 TCD Thermal conductivity principle TCD

露点分析仪 CI-PC35-1
Dew point analyzer CI-PC35-1

水分系列
Moisture series

CI-PC35-1能在多种环境下进行露点的准确测量，为用户提供露点温度和湿度体积比显示。
CI-PC35-1 can accurately measure the dew point in a variety of environments and provide users with dew point temperature and humidity volume ratio display.

产品特点 Product features
1.将微控制器与数字处理技术相结合，抗交叉干扰、稳定可靠；
Combining microcontroller with digital processing technology, it is anti-interference, stable and reliable;
2.同步显示露点值和体积比，满足用户的不同需求；
Synchronously display dew point value and volume ratio to meet different needs of users;
3.采用最新的触摸按键技术，操作简便，按键使用寿命长。
Using the latest touch button technology, easy operation, long service life of the button.

气体 GAS	水份H_2O
测量范围 measuring range	微量级 (ppm)
应用领域 application fields	质量控制 Quality control
传感器技术 sensor technology	超薄型氧化铝电容式传感器 Ultra thin alumina capacitive sensor

露点分析仪 CI-PC31
Dew point analyzer CI-PC31

水分系列
Moisture series

CI-PC31能够在-110°C～+20°C范围内快速准确地测量气体的露点温度，特别适合低露点环境下混合气体的露点检测。
CI-PC31 can quickly and accurately measure the dew point temperature of gas in the range of -110 °C~+ 20 °C. It is especially suitable for the dew point detection of mixed gas in low dew point environment.

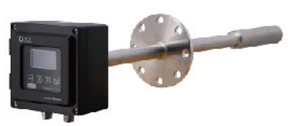
产品特点 Product features
1.具有抗结露，防止醇类、天然气液体以及各种颗粒的污染，纳米技术改变了材料的临界特性；
It can resist condensation and prevent the pollution of alcohols, natural gas liquids and various particles. Nanotechnology has changed the critical characteristics of materials;
2.具有高可靠性、响应速度快和精度高的优势。
It has the advantages of high reliability, fast response speed and high precision.

气体 GAS	水份H_2O
测量范围 measuring range	微量级 (ppm)
应用领域 application fields	质量控制 Quality control
传感器技术 sensor technology	超薄型氧化铝电容式传感器 Ultra thin alumina capacitive sensor

湿度&氧分析仪 CI-PC168
Humidity & Oxygen analyzer CI-PC168

水分系列
Moisture series

CI-PC168为环境湿度、氧浓度监控提供了准确的依据。
CI-PC168 provides an accurate basis for the environmental humidity and oxygen concentration monitoring.



产品特点 Product features
1.双离子流传感器实现氧和水同步测量，完全解决了单只氧传感器无法实现同时测量动态氧与电解湿氧的难题；
The dual ion flow sensor realizes the synchronous measurement of oxygen and water, which completely solves the problem that a single oxygen sensor can not measure dynamic oxygen and electrolytic wet oxygen at the same time;
2.纳米化学制备技术合成的新型电解质材料，增强抗硫化物、金属离子中毒等特性（采用非金属电极，增强抗硫化物）。

气体 GAS	氧O_2 水份H_2O
测量范围 measuring range	百分级 (%)
应用领域 application fields	环保检测 Environmental protection detection
传感器技术 sensor technology	3D离子流湿度传感器 3D ion current humidity sensor

系列湿度&氧变送器 CI-PC18-H
Humidity & Oxygen transmitter CI-PC18-H

水分系列
Moisture series

CI-PC18-H可适用于高腐蚀、高湿度等恶劣工况下的湿度&氧连续在线测量。
CI-PC18-H can be used for continuous on-line measurement of humidity and oxygen under severe working conditions such as high corrosion and high humidity.

产品特点 Product features
1.可长期应用于垃圾焚烧等恶劣工况；
It can be used in severe working conditions such as waste incineration for a long time;
2.同时监测样气中的湿度和氧浓度；
Simultaneously monitor the humidity and oxygen concentration in the sample gas;
3.用户特有的通讯代码，从其它途径获得的变送器不能对接。
Due to the user's unique communication code, the transmitter obtained from other channels cannot be connected.

气体 GAS	氧O_2 水份H_2O
测量范围 measuring range	百分级(%)
应用领域 application fields	环保检测 Environmental protection detection
传感器技术 sensor technology	3D离子流湿度传感器 3D ion current humidity sensor

多组分在线分析仪 CI-PC683-B
Multicomponent online analyzer CI-PC683-B

多组分系列
Multi-component series

CI-PC683-B分析仪是我公司专门针对复杂工艺环境开发的多组分气体浓度检测系统。
CI-PC683-B analyzer is a multi-component gas concentration detection system specially developed by our company for complex process environment.

产品特点 Product features
1.可集成NDIR、TCD、电化学传感器；
NDIR, TCD and electrochemical sensors can be integrated;
2.监测易燃气体污染物的综合性解决方案；
Comprehensive solutions for monitoring flammable gas pollutants;
3.超可靠的非损耗型数字检测技术，可延长维护周期。
Ultra reliable non loss digital detection technology, which can prolong the maintenance cycle.

气体 GAS	氧O_2 氢H_2 一氧化碳CO 二氧化碳CO_2 甲烷CH_4…
测量范围 measuring range	百分级(%) 微量级(ppm)
应用领域 application fields	安全应用 Safe application 质量控制 Quality control 过程控制 Process control 燃烧控制 Combustion control
传感器技术 sensor technology	NDIR TCD 电化学 NDIR TCD electrochemistry

第七部分 工况案例
Section 7 Working condition case

提取气体分析系统

昶艾提供完整的分析系统，包括气体分析仪、取样系统和气体制备系统。它们的特点是易于操作、便于安装和可现场调试。此外，它们还配有现代通信系统，如以太网、Modbus，因此适用于现代通信，并为未来的需求做好准备。

Extracted gas analysis system

ChangAi provides a complete analysis system, including gas analyzer, sampling system and gas preparation system. They are characterized by easy operation, easy installation and on-site commissioning. In addition, they are equipped with modern communication systems, such as Ethernet and modbus, so they are suitable for modern communication and ready for future needs.

BOG提氦-选择性
测氢分析系统

低氮燃烧控制

化工氢氟酸工程

空分ASU过程监测

干熄焦余热回收
过程监测

混合煤气热值分析监测

可控气氛炉过程监测

废液焚烧过程

原位激光(TDL)过程气体分析

原位激光分析仪在化工、石化和炼油企业中，可调谐二极管激光分析仪(TDL) 正日益普及。它高度可靠，维护工作量小，使其成为用户首选的气体分析技术。TDL直接安装在过程中，无需昂贵且维护量大的预处理系统，获得快速响应。TDL 成为在线、动态气体测量的理想之选。

Gas analysis in in situ laser (TDL) process

In situ laser analyzer in chemical, petrochemical and oil refining enterprises, tunable diode laser analyzer (TDL) is becoming more and more popular. It is highly reliable and has a small maintenance workload, making it the preferred gas analysis technology for users. TDL is directly installed in the process without expensive and heavily maintained pretreatment system to obtain fast response. TDL is an ideal choice for on-line and dynamic gas measurement.

转炉炼钢煤气回收

加热炉燃烧优化控制--
高温1300℃(O_2)

医药中间体
氧化反应过程

化产异味回收装置尾气治理
(氧气可燃气监测)

干熄焦余热回收过程监测
(原位激光CO\$CO_2$\$O_2$)

苯储存罐顶部尾气排放监测

废气HCL (0-10ppm)
排放监测 (气液焚烧)

焦炉煤气H_2S监测(0-10ppm)

原位单端反射式激光分析仪

原位TDL通常采用双侧安装式设计，但这不能作为定律。内联式（单端面反射式）TDL能够有效克服安装上的困难。探头是激光器中的一部分，伸入过程气体中。对于内联式TDL二极管激光器和检测器位于管道的同一侧。发射的激光束被反射镜反射回探测器，因此实现了无需对光路的工作，可在恶劣的工艺条件下以及潜在的危险物质浓度下直接在现场提供可靠的工艺数据。

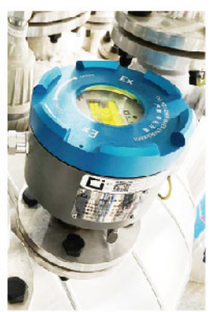
In situ single ended reflective laser analyzer

In situ TDL is usually designed with two-sided installation, but this cannot be used as a law. Inline (single end reflection) TDL can effectively overcome the difficulties in installation. The probe is a part of the laser and extends into the process gas. For the inline TDL diode, the laser and the detector are located on the same side of the pipeline. The emitted laser beam is reflected back to the detector by the mirror. Therefore, no need to work on the optical path is realized, and it can work under harsh process conditions and potential dangerous objects Provide reliable process data directly on site under mass concentration.


氨基化反应釜过程（O_2）


强酸碱工艺离心机过程


氯甲烷回收工艺监测


固体粉料反应釜（釜顶安装）


加氢反应釜过程


聚合反应过程


离心机安全监测


发酵工艺


化工过程


医药中间体合成工艺

环境排放在线监测

对大气排放的气态污染物、挥发性有机物VOCs和颗粒物进行浓度和排放总量连续监测并将信息实时传输到主管部门的装置。主要对烟气或废气排放中NOx、SO、CO_2、NMHC、MACHs等气态方式存在的污染物进行监测，同时对排放废气的温度、压力、湿度、含氧量等参数进行监测，用以将污染物的浓度转换成标准干烟气状态和规定过剩空气系数下的浓度。

On line monitoring of environmental emission

A device that continuously monitors the concentration and total emission of gaseous pollutants, volatile organic compounds, VOCs and particles discharged from the atmosphere and transmits the information to the competent department in real time. It mainly monitors the gaseous pollutants such as NOx, SO, CO_2, NMHC and machs in the flue gas or exhaust gas emission, and monitors the temperature, pressure, humidity, oxygen content and other parameters of the exhaust gas, so as to convert the concentration of pollutants into the standard dry flue gas state and the concentration under the specified excess air coefficient.


烟气排放监测


超低排放监测


非甲烷总烃+苯系物在线监测


挥发性有机物(VOCs)在线监测

交钥匙分析小屋

无论是用于排放测量还是过程测量，分析仪都应安装在测量现场附近。分析小屋用于保护分析仪、测量仪以及信号和数据作为完整的分析系统，它们配备了高质量的系列部件和组件，凭借可配置的结构，可根据各自的要求对其进行最佳定制。

Turnkey analysis cabin

Whether used for emission measurement or process measurement, the analyzer shall be installed near the measurement site. The analyzer house is used to protect analyzers, measuring instruments, signals and data. As a complete analysis system, they are equipped with a series of high-quality components and components. With configurable structure, they can be optimally customized according to their respective requirements.


聚丙烯装置气体检测控制

≫ 近几年部分工程业绩
精细化工
安徽圣奥化学科技有限公司
大连铭源储罐码头有限公司
鹤壁市赛科化工有限公司
中石化东兴化工有限公司
海伟石化有限公司
河北临港化工有限公司
山东垦利石化有限公司
万华化学集团股份有限公司
中国石油化工股份有限公司巴陵分公司
新材料
魏桥集团
山东圣泉新材料股份有限公司
济南圣泉铸造材料有限公司
天津鲁华泓锦新材料科技有限公司
首钢京唐钢铁联合有限责任公司
湖南华菱湘潭钢铁有限公司
江苏恒兴新材料科技股分有限公司
天津国安盟固利新材料科技股份有限公司
安徽池州西恩新材料有限公司
冶金
宝钢工程技术集团有限公司
张家港宏昌钢板有限公司
莱芜钢铁集团电子有限公司
山东钢铁集团日照有限公司
山东磐金钢管制造有限公司
山东鲁丽钢铁有限公司
新余钢铁股份有限公司
江苏沙钢集团有限公司
江西南昌钢铁有限公司
南京钢铁集团有限公司
邯郸钢铁集团有限责任公司
石横特钢集团有限公司
天津铁厂有限公司
凌源钢铁股份有限公司
医药中间体化工
山东昆达生物科技有限公司
齐鲁制药有限公司

大连双硼医药化工有限公司
大连百傲化学股份有限公司
扬州联博药业有限公司
江苏福瑞康泰药业有限公司
宜兴市恒兴精细化工有限公司
内蒙古科迈化工有限公司
江西天新药业股份有限公司
斯比凯可（山东）生物制品有限公司
四川省乐山市福华通达农药科技有限公司
煤焦化
景德镇市焦化能源有限公司
邢台旭阳煤化工有限公司
唐山东方炼焦制气有阳限公司
河南省顺成煤焦有限公司
湖北中特新化能科技有限公司
神华乌海能源有限责任公司
山西曙光诚信信焦化限公司
陕西黑猫焦化股份有限公司
陕西黄陵煤化工有限责任公司
陕西龙门煤化工有限责任公司
山东铁雄新沙能源有限公司
宁夏宝丰能源集团煤焦化有限公司
新疆广汇新能源有限公司
哈密茂坤能源科技有限责任公司
孝义市金岩焦化有限公司
空分
开封开兴能源管理有限公司
河南开元中小空分设备有限公司
开封市鑫联空分设备有限公司
杭州中泰深冷技术股份有限公司
中冶南方（黄石）气体有限公司
液化空气（天津）有限公司
广钢林德气体（广州）有限公司
新能源
深圳市比亚迪锂电池有限公司
贵州容百锂电材料有限公司
宁德时代股份有限公司
赣锋锂业有限公司
山东鑫动能锂电科技有限公司

服务体系

昶艾科技自2004年成立以来，已拥有专业的研发、生产、销售及服务支持团队。公司一直严格遵循“360°优质服务”的客户服务理念，以提高顾客满意度为根本目标，从服务力量、服务流程、服务内容等各方面为客户提供全方位的优质服务。

Service system

Chang Ai Technology since its establishment in 2004, it has a professional R&D, production, sales and service support team. The company has been strictly following the customer service concept of "360° high-quality service", taking improving customer satisfaction as the fundamental goal, and providing customers with a full range of high-quality services in terms of service force, service process, and service content.

我们永不满足于通常的市场标准。这就是我们自己研发部门的用武之地：这里，新的想法会变成创新产品--实现更高的精度、良好的用户体验和无与伦比的可靠性。对我们而言，显而易见的是，这些最高要求也适用于我们的生产过程。高品质的材料、细致的做工，同时，如有必要，还有特别开发的生产工艺和测试程序。能确保高品质，而高品质是所有昶艾分析仪所共有的。无论我们设计哪些新产品，我们全程秉承最高要求，超乎你的想象!!

We will never be satisfied with the usual market standards. This is where our own R & D department comes into play: here, new ideas will become innovative products - achieving higher accuracy, good user experience and unparalleled reliability. It is obvious to us that these highest requirements also apply to our production process. High quality materials, meticulous workmanship, and, if necessary, specially developed production processes and test procedures. It can ensure high quality, which is common to all ChangAi analyzers. No matter what new products we design, we uphold the highest requirements throughout the process, beyond your imagination!!

我们的销售人员不只是懂得销售，而是更多！

无论您需要服务支持还是需要采购支持，或只是想简单地探讨一下您的测量需求。我们都能提供全面的支持——这种支持无处不在！

昶艾------完成您的每一次托付！