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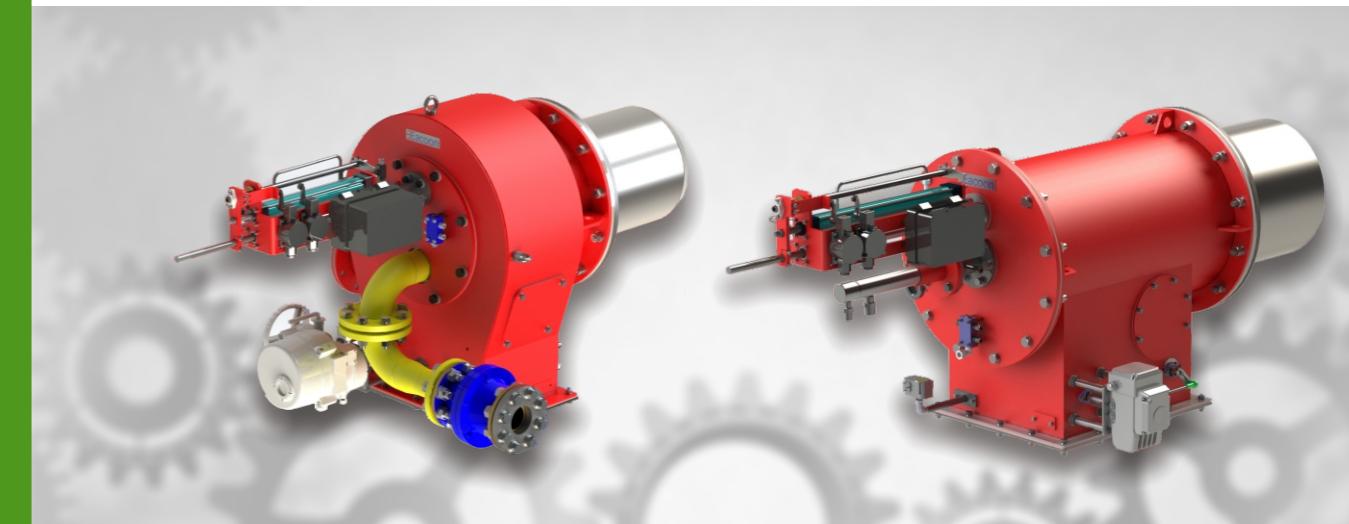
district, Guangzhou.



意高燃烧器

让燃烧完美而简约 Make combustion perfect and simple

EACOON BURNERS



以质量求发展 以服务求信誉

TO SEEK DEVELOPMENT THROUGH QUALITY AND REPUTATION THROUGH SERVICE

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意高环保装备（广州）有限公司

Eacoon environmental protection equipment (Guangzhou) Co., LTD

燃烧器全生命周期服务供应商

Full life circle service provider of burner



为了适应业务发展的需要，广东意高能源科技股份有限公司围绕“燃烧+”服务理念，以核心技术、核心产品、核心服务能力进行全面的服务提升，燃烧器及配套设备的智造业务已转移至意高环保装备(广州)有限公司，并增设“设备+工程”“工业物联网”等服务延伸，为广大用户提供更全面、省心的一站式燃烧系统运营管理服务。

意高环保装备是意高集团的旗下全资子公司，专业从事燃烧设备、固废、危废处理技术和节能环保设备，集研发、设计、制造、销售和服务于一体的高新科技企业。意高环保装备始终站在国际燃烧技术和热能高效利用技术的前沿，致力于打造拥有中国特色的一站式整体热能解决方案，为企业搭建可持续发展的热能服务生态圈。

In order to meet the needs of business development, Guangdong Eacoon Energy Science and Technology Stock Co., Ltd centers the "combustion +" service concept and comprehensively improves its services with core technology, core products, and core service capabilities. The intelligent manufacturing business of burners and supporting equipment has been transferred to Eacoon Environmental Protection Equipment (Guangzhou) Co., Ltd., and service extensions such as "equipment + engineering" and "industrial Internet of Things" have been added, to provide users with more comprehensive and no worry one-stop combustion system operation and management services.

Eacoon Environmental Protection Equipment is a wholly-owned subsidiary of Eacoon Group, specializing in combustion equipment, solid waste, hazardous waste treatment technology, and energy-saving and environmental protection equipment. It is a high-tech enterprise that integrates research and development, design, manufacturing, sales, and service. Eacoon Environmental Protection Equipment has always been at the forefront of international combustion technology and efficient utilization of thermal energy, committed to creating a one-stop overall thermal energy solution with Chinese characteristics, and building a sustainable thermal energy service ecosystem for enterprises.

◆产品应用领域 PRODUCTS APPLICATION FIELD



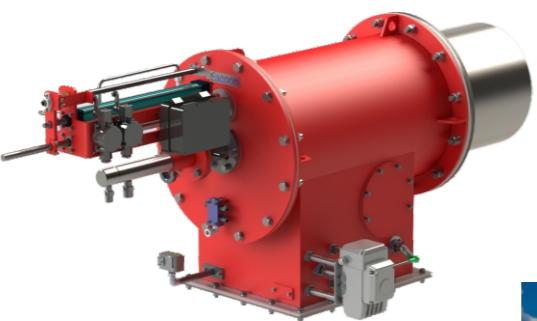
固废行业
Solid waste industry



**工业废气
废液处理**
Industrial waste gas and
wasteliquid treatment



工业锅炉
Industrial boiler



筑路行业
Road construction
industry



供热行业
Heat supplying industry



钢铁行业
Iron and steel industry



化工行业
Chemical industry

意高与固废 Eacoon and Solid Waste

随着国家对固废污染控制的重视，固废处理行业的市场及技术要求也日趋严苛，意高一直注重固废行业的技术的改造与服务的提升，根据国内的危废、垃圾发电等项目的特殊工况，还自主研发了双流体喷枪、中低压供油系统、高浓度有机废液焚烧等技术、定制燃烧器冷却、保护装置，燃烧器点火装置、退出伸缩系统、阀门、定制燃烧器和废液喷枪等功能，共60多项国家专利。

With the increasing emphasis on solid waste pollution control by the country, the market and technical requirements of the solid waste treatment industry are becoming increasingly stringent. Eacoon has always focused on the technological transformation and service improvement of the solid waste industry. Based on the special working conditions of domestic hazardous waste and waste power generation projects, we have also independently developed dual fluid spray guns, medium and low pressure oil supply systems, high concentration organic waste incineration and other technologies, customized burner cooling and protection devices, burner ignition devices, exit telescopic systems, valves, customized burners, and waste spray guns, with a total of over 60 national patents.

近年来意高合作过的固废企业很多，其中不乏光大、首创、中节能等集团的行业巨头。虽然同属固废企业，但是每个客户的需求不尽相同，意高服务团队充分尊重每一位客户的个性化需求，制定独特的产品方案。另外，针对国家近年来对垃圾发电行业的环保政策，意高也为垃圾发电厂提供燃烧器改造的服务，用心打造固废行业提供一站式的燃烧系统运营管理服务。

In recent years, there have been many solid waste enterprises that Eacoon has cooperated with, including industry giants such as Everbright, Capital Environment, and China Energy Conservation. Although both belong to solid waste enterprises, the needs of each customer are different. Eacoon service team fully respects the personalized needs of each customer and develops unique product solutions. In addition, in response to the environmental protection policies of the country towards the waste power generation industry in recent years, Eacoon also provides burner renovation services for waste power plants, and strives to create a one-stop combustion system operation and management service for the solid waste industry.

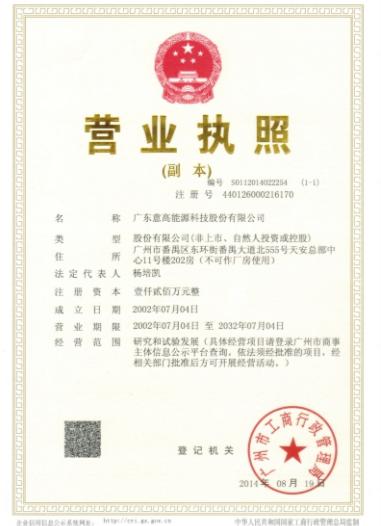
◆起源于意大利 STEM FROM ITALY

EACOON(意高) 品牌燃烧器，是欧洲著名燃烧器专业厂家、与意高公司深度合作的节能环保优质产品。产品本着科学设计、高端配置、高效节能、安全环保的原则，完全符合欧洲EN、CE、ISO标准和认证，是世界著名燃烧器品牌之一。

主要产品包括枪式一体机、枪式分体机、箱式机，可燃烧轻油、重油、天然气、油气两用或其他非标气体。

EACOON brand burner is a renowned European burner manufacturer that collaborates with Eacoon Company to produce energy-saving and environmentally friendly high-quality products. The product adheres to the principles of scientific design, high-end configuration, high efficiency, energy conservation, safety and environmental protection, and fully complies with European EN, CE, ISO standards and certifications. It is one of the world's famous burner brands.

The main products include lance type integrated burner, lance type split burner, and box type burner, which can burn light oil, heavy oil, natural gas, dual use oil and gas, or other non-standard gases.



荣誉证书 Certificate of Honor



意高燃油、燃气和双燃料燃烧器是全自动，安全，并且可以信赖的产品，燃烧器配备最新的智能化控制系统。

Eacoon's fuel, gas, and dual fuel burners are fully automatic, safe, and reliable products, equipped with the latest intelligent control system.



燃烧器的设计和制造以经济、安全、服务和环保为基础。
The design and manufacturing of burners are based on economy, safety, service, and environmental protection.



意高燃烧器适用于危废处理项目回转窑、二燃室、立式炉等。
Eacoon burner is suitable for rotary kilns, secondary combustion chambers, vertical furnaces, etc. in hazardous waste treatment projects.



意高燃烧器适用于不同的液体和气体燃料，如轻油，重油，天然气、沼气、废液等。应客户需求，也可使用其他燃料。
Eacoon burner is suitable for different liquid and gas fuels, such as light oil, heavy oil, natural gas, biogas, waste liquid, etc. Other fuels can also be used according to customer needs.



数字化的燃烧器控制系统（如PLC S7系列或者程控器）可以和外部控制系统实现通讯，远程监控和诊断优化了运行效能。
Digital burner control systems (such as PLCS7 series or programmable controllers) can communicate with external control systems, remotely monitor and diagnose to optimize operational efficiency.



燃烧器符合且遵守法规和标准，如NFPA和EN。
The burner complies with regulations and standards such as NFPA and EN.

◆技术储备与成果转化 TECHNICAL RESERVES AND ACHIEVEMENT TRANSFORMATION

与西门子签订战略合作协议。
Sign a strategic cooperation agreement with Siemens.

2021



2020



自主研发超低氮燃烧器，成功进入市场。
Independently developing ultra-low nitrogen burners and successfully entering the market.

2018



2017

危废组合燃烧器应用于上海电气海安危废项目。
The hazardous waste combination burner is applied to the Shanghai Electric Haian hazardous waste project.



60项
国家专利
60
NATIONAL PATENTS

6项
发明专利
6
INVENTION PATENTS

17个
型式试验证书
17
TYPE TEST CERTIFICATES

◆ 合作伙伴 COOPERATION PARTNERS

广东意高能源始终站在国际燃烧技术和热能高效利用技术的前沿，与国际领先的化石燃料燃烧技术的著名品牌意大利GUILANI(朱利安尼)、意大利FBR、瑞士Stiefel(斯特福)、德国PR等达成战略合作，协同发展。集团与中国科学院能源研究院、哈工大、西安交通大学、华南理工大学等科研院所联合进行技术研发，建立跨国节能经济研究院，实现海内外人才与技术的有效结合，实现公司在能源领域的产学研联动发展。

Guangdong Eacoon Energy has always been at the forefront of international combustion technology and efficient utilization of heat energy, and has reached strategic cooperation and coordinated development with renowned brands such as Italy's GUILANI, Italy's FBR, Switzerland's Stiefel, and Germany's PR, which are internationally leading fossil fuel combustion technologies. The Group cooperates with the Energy Research Institute of the Chinese Academy of Sciences, Harbin Institute of Technology, Xi'an Jiaotong University, South China University of Technology and other scientific research institutes to carry out technology research and development, establish a transnational energy-saving economic research institute, realize the effective combination of talents and technology at home and abroad, and realize the joint development of industry, education and research in the energy field of the company.



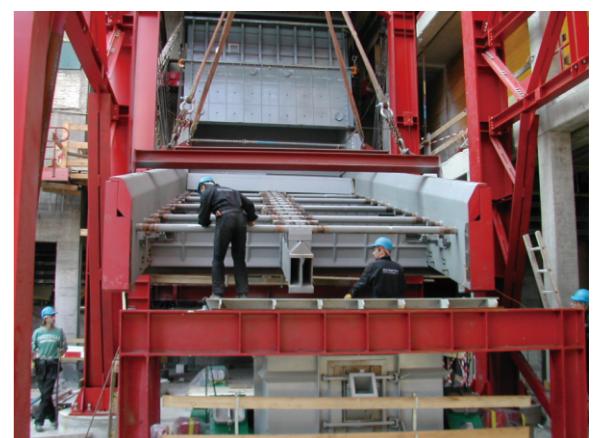
◆ 合作伙伴 — 瑞士斯特福 PARTNER - STIEFEL, SWITZERLAND

斯特福(STIEFEL)集团创立于1973年，总部和生产中心设立于瑞士苏黎世的韦齐孔(Wetzikon)。

The STIEFEL group was founded in 1973, with its headquarters and production center located in Wetzikon, Zurich, Switzerland.

斯特福集团致力于垃圾焚烧发电的事业，核心设备是垃圾焚烧、危废焚烧和污泥焚烧系统，并拥有多项发明和专利技术。公司具备工程设计、项目建设、调试和维护的能力。

STIEFEL Group is committed to the business of waste incineration power generation, with core equipment including waste incineration, hazardous waste incineration, and sludge incineration systems, and possesses multiple inventions and patented technologies. The company has the ability to conduct engineering design, project construction, debugging, and maintenance.



◆ 合作伙伴-德国 PRFEUERUNGSTECHNIK

德国 PR Feuerungstechnik 是一家专门做燃烧设备设计、开发、调试的工程公司。

广东意高与PR的技术团队自2003年开始合作，包括在筑路机械行业的燃烧器开发，大功率燃烧器的开发等。

目前正进行超低氮大功率燃烧器的开发、生产和非标项目合作。

PR Feuerungstechnik from Germany is an engineering company specializing in the design, development, and debugging of combustion equipment.

The technical team of Guangdong Eacoon and PR has been collaborating since 2003, including the development of burners in the road construction machinery industry and high-power burners. We are currently collaborating on the development, production, and non-standard projects of ultra-low nitrogen high-power burners.



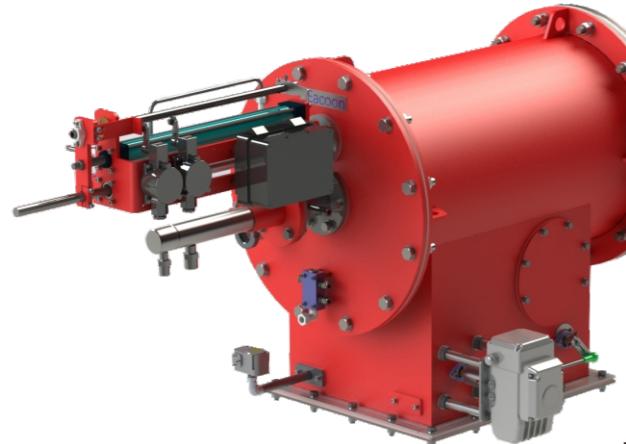
◆ 垃圾发电投资 INVESTMENT IN WASTE POWER GENERATION

由广东意高能源科技股份有限公司投资的高安意高再生资源热力发电有限公司，公司成立于2014年8月12日，主营业务为垃圾焚烧发电，项目总投资为3.3亿元，坐落于高安市荷岭镇上寨村，总占地面积80亩。2018年6月28日正式投产使用，项目建设总规模为3*300t/d，总装机容量为18MW。一期2*300t/d，年处理生活垃圾22万吨，年发电量8000万千瓦时；二期300t/d已预留场地扩建。

Gao'an Eacoon Renewable Resources Thermal Power Generation Co., Ltd., invested by Guangdong Eacoon Energy Technology Co., Ltd., was established on August 12, 2014. Its main business is waste incineration power generation, with a total investment of 330 million RMB. It is located in Shangzai Village, Heling Town, Gao'an City, covering a total area of 53,333 square meter. The project was officially put into operation on June 28, 2018, with a total construction scale of 3 * 300t/d and a total installed capacity of 18MW. Phase I: 2 * 300t/d, with an annual treatment capacity of 220,000 tons of household waste and an annual power generation capacity of 80 million kilowatt hours; The second phase of 300t/d has reserved space for expansion.



燃油机型：Fuel oil model: WL-400 to WL-2000



功率范围：一体机：2-7MW
分体机：2-20MW

燃料类型：轻柴油

设备形式：一体式/分体式

设备分类：分体型：1.点火推进型；2.油枪推进型；3.闸门关闭型
控制方式：一体机：程控器控制或者plc
分体机：plc控制

适用炉型：垃圾焚烧炉、回转窑二燃室、工业锅炉
设备配套：燃烧器+阀组撬块+BMS系统(PLC)

Power Range: Integrated burner:2-7MW

Split burner:2-20MW

Fuel type: Light diesel oil

Machine type: Integrated/Split

Equipment classification: Ignition propulsion type

Control method: programmable controller or PLC

Splitter burner: PLC control

Applicable furnace type: Garbage incinerator, rotary kiln secondary combustion chamber, industrial boiler

Supporting equipment: Burner +valve set piping system+BMS system (PLC)

定制化设计装置 CUSTOMIZED DESIGN DEVICE



高温退出驱动机构 High temperature exit drive mechanism

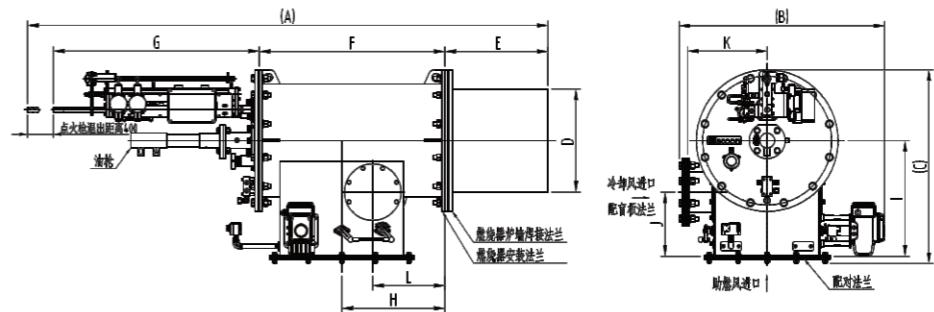
应用：WL小型、TL大型燃油油枪推进型燃烧器
结构：点火枪、油枪推进、退出驱动机构
功能：将稳焰盘、油枪和点火枪退出高温辐射区
目的：实现避免部件高温损坏，延长产品的使用寿命
Application: WL small and TL large fuel lance propulsion burner
Structure: ignition gun, oil gun propulsion, exit drive mechanism
Function: Exit the diffuser, oil gun, and ignition gun from the high-temperature radiation zone
Purpose: To avoid high-temperature damage to components and extend the service life of the product



WL闸门关闭型燃烧器 WL gate closed burner

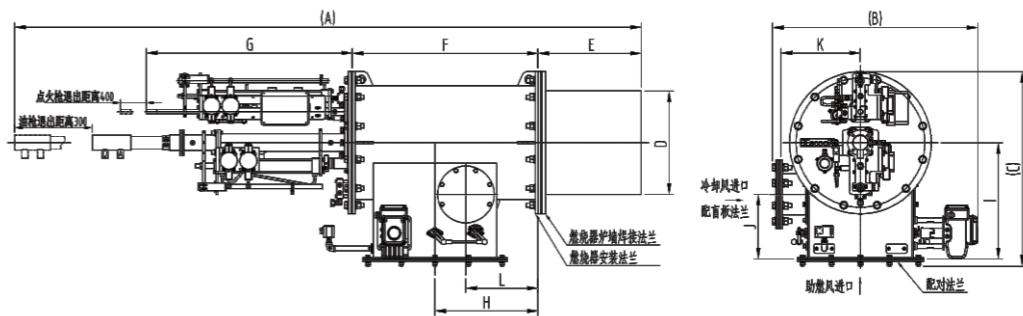
特点：具备闸门开关驱动机构
功能：隔绝燃烧器与炉膛的连通，避免高温辐射
目的：避免因使用冷却风保护带来的炉膛热损耗
Features: Equipped with gate switch driving mechanism
Function: Isolate the connection between the burner and the furnace, avoiding high-temperature radiation
Purpose: To avoid furnace heat loss caused by the use of cooling air protection

WL燃油燃烧器（标准型-正装）外形尺寸 WL fuel oil burner(standard type) outline size



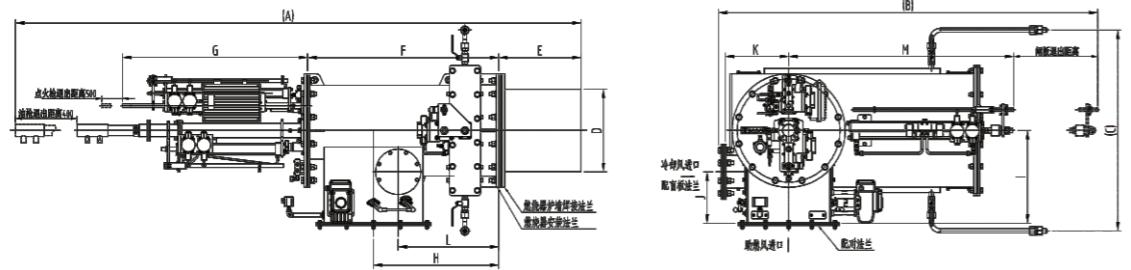
燃烧器型号 Model	标准型燃烧器外形尺寸 Outline size of standard burner												
	A	B	C	D	E	F	G	H	I	J	K	L	重量(kg)
WL-400	2130	653	633	310	350	580	800	330	350	195	250	245	155.3
WL-500	2130	653	633	310	350	580	800	330	350	195	250	245	155.3
WL-600	2130	653	633	330	350	580	800	330	350	195	250	245	155.8
WL-700	2130	653	633	330	350	580	800	330	350	195	250	245	155.8
WL-800	2320	797	753	380	400	720	800	400	450	250	310	280	229.3
WL-1000	2320	797	753	400	400	720	800	400	450	250	310	280	257.6
WL-1200	2320	797	753	430	400	720	800	400	450	250	310	280	258.2
WL-1500	2470	953	978	450	450	820	800	450	600	350	380	360	329.2
WL-1800	2470	953	978	480	450	820	800	450	600	350	380	360	330.1
WL-2000	2470	953	978	520	450	820	800	450	600	350	380	360	330.9

WL燃油燃烧器（油枪推进型-正装）外形尺寸 WL fuel oil burner (oil lance propulsion type) outline size



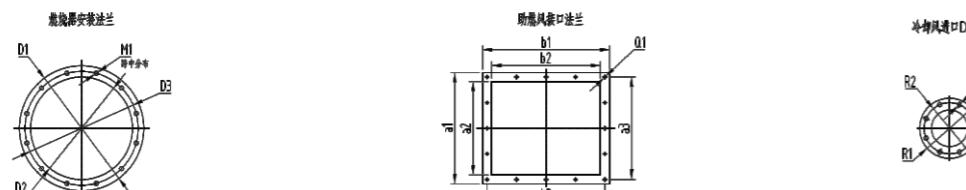
燃烧器型号 Model	油枪推进型燃烧器外形尺寸 Outline size of oil lance propulsion type of burner												
	A	B	C	D	E	F	G	H	I	J	K	L	重量(kg)
WL-400	2130	653	633	310	350	580	800	330	350	195	250	245	178.7
WL-500	2130	653	633	310	350	580	800	330	350	195	250	245	178.7
WL-600	2130	653	633	330	350	580	800	330	350	195	250	245	179.2
WL-700	2130	653	633	330	350	580	800	330	350	195	250	245	179.2
WL-800	2430	797	753	380	400	720	800	400	450	250	310	280	253.9
WL-1000	2430	797	753	400	400	720	800	400	450	250	310	280	282.1
WL-1200	2430	797	753	430	400	720	800	400	450	250	310	280	282.8
WL-1500	2520	953	978	450	450	820	800	450	600	350	380	360	359.1
WL-1800	2520	953	978	480	450	820	800	450	600	350	380	360	359.8
WL-2000	2520	953	978	520	450	820	800	450	600	350	380	360	360.8

WL燃油燃烧器（闸门关闭型-正装）外形尺寸 WL fuel oil burner (gate closed type) outline size



燃烧器型号 Model	闸门关闭型燃烧器外形尺寸 Utline size of gate closed type of burner													
	A	B	C	D	E	F	G	H	I	J	K	L	M	重量(kg)
WL-400	2554	1563	842	310	350	764	900	514	350	195	250	429	855	325.4
WL-500	2554	1563	842	310	350	764	900	514	350	195	250	429	855	325.4
WL-600	2554	1563	842	330	350	764	900	514	350	195	250	429	855	325.9
WL-700	2554	1563	842	330	350	764	900	514	350	195	250	429	855	325.9
WL-800	2849	1935	972	380	400	929	900	609	450	250	310	489	1094	502.8
WL-1000	2849	1935	972	400	400	929	900	609	450	250	310	489	1094	503.3
WL-1200	2849	1935	972	430	400	929	900	609	450	250	310	489	1094	503.9
WL-1500	2960	2130	1157	450	450	980	900	610	600	350	380	520	1120	596.5
WL-1800	2960	2130	1157	480	450	980	900	610	600	350	380	520	1120	597.2
WL-2000	2960	2130	1157	520	450	980	900	610	600	350	380	520	1120	598.2

WL燃油燃烧器接口尺寸图 *Interface dimension diagram of WL fuel oil burner*

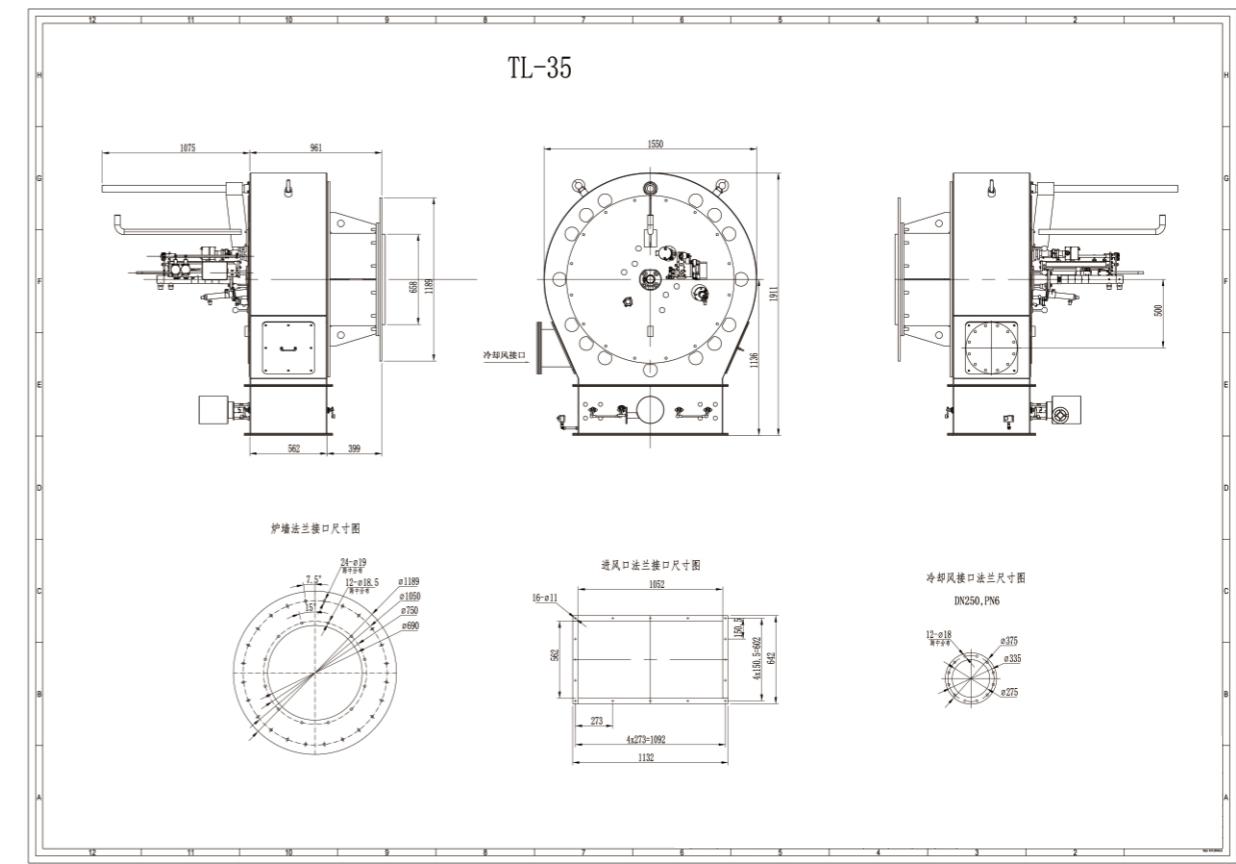


燃烧器型号 Model	燃烧器安装法兰尺寸 Flange size of burner installation				助燃风接口法兰尺寸 Interface flange size of combustion supporting air							冷却风接口法兰尺寸 Interface flange size of cooling air			
	D1	D2	D3	M1	a1	a2	a3	b1	b2	b3	Q1	DN(x)	R1	R2	N1
WL-400	420	340	380	8-φ18	310	330	350	195	250	245	12-φ12	125	240	200	8-φ18
WL-500	420	340	380	8-φ18	310	330	350	195	250	245	12-φ12	125	240	200	8-φ18
WL-600	420	340	380	8-φ18	330	330	350	195	250	245	12-φ12	125	240	200	8-φ18
WL-700	420	340	380	8-φ18	330	330	350	195	250	245	12-φ12	125	240	200	8-φ18
WL-800	550	450	500	12-φ18	380	400	450	250	310	280	16-φ12	150	265	225	8-φ18
WL-1000	550	450	500	12-φ18	400	400	450	250	310	280	16-φ12	150	265	225	8-φ18
WL-1200	550	450	500	12-φ18	430	400	450	250	310	280	16-φ12	150	265	225	8-φ18
WL-1500	700	580	650	12-φ18	450	450	600	350	380	360	16-φ12	200	320	280	8-φ18
WL-1800	700	580	650	12-φ18	480	450	600	350	380	360	16-φ12	200	320	280	8-φ18
WL-2000	700	580	650	12-φ18	520	450	600	350	380	360	16-φ12	200	320	280	8-φ18

大功率燃油机型: High power fuel oil burner model:TL-25~TL-40

功率范围：20-70MW
燃料类型：轻柴油
设备形式：分体式
设备分类：分体型：1. 点火推进型；2. 油枪推进型
控制方式：plc控制
适用炉型：垃圾焚烧炉、回转窑二燃室、工业锅炉
设备配套：燃烧器+阀组撬块+BMS系统(PLC)

Power Range: 20-70MW
Fuel typ: Light diesel oil
Machine type: Split burner
Equipment classification: 1.Ignition propulsion type 2. lance propulsion type.
Control method: PLC
Applicable furnace type: Garbage incinerator, rotary kiln secondary combustion chamber, industrial boiler
Supporting equipment: Burner +valve set piping system +BMS system (PLC)



燃气机型: Fuel gas burner model: WG-400~WG-2000

功率范围: 一体机: 2-7MW
分体机: 2-20MW

燃料类型: 天然气

设备形式: 一体式/分体式

设备分类: 分体型: 点火推进型

控制方式: 一体机: 程控器控制或者plc
分体机: plc控制

适用炉型: 垃圾焚烧炉、回转窑二燃室、工业锅炉

设备配套: 燃烧器+阀组撬块+BMS系统(PLC)

Power Range: Integrated burner: 20-70MW, Split burner: 2-20MW

Fuel type: Natural gas

Machine type: Integrated /Split burner

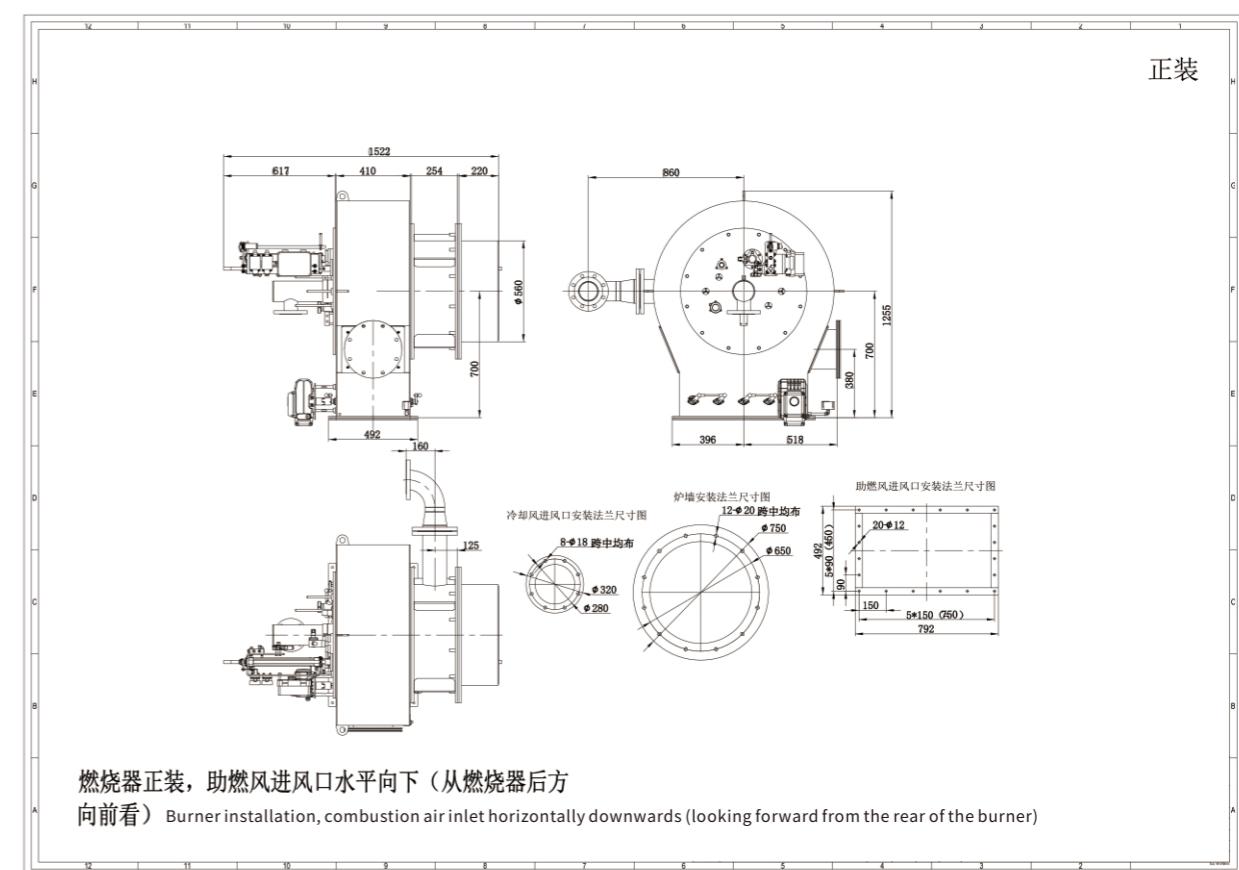
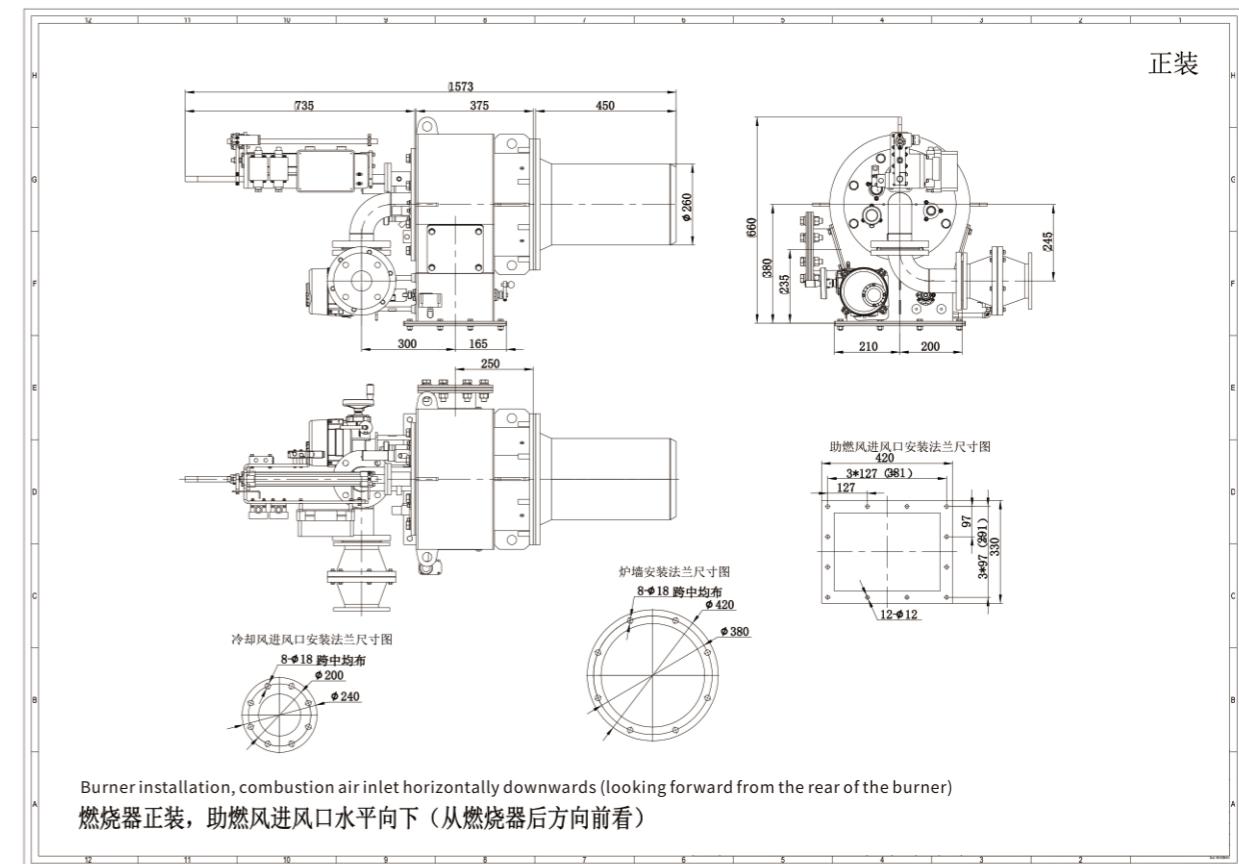
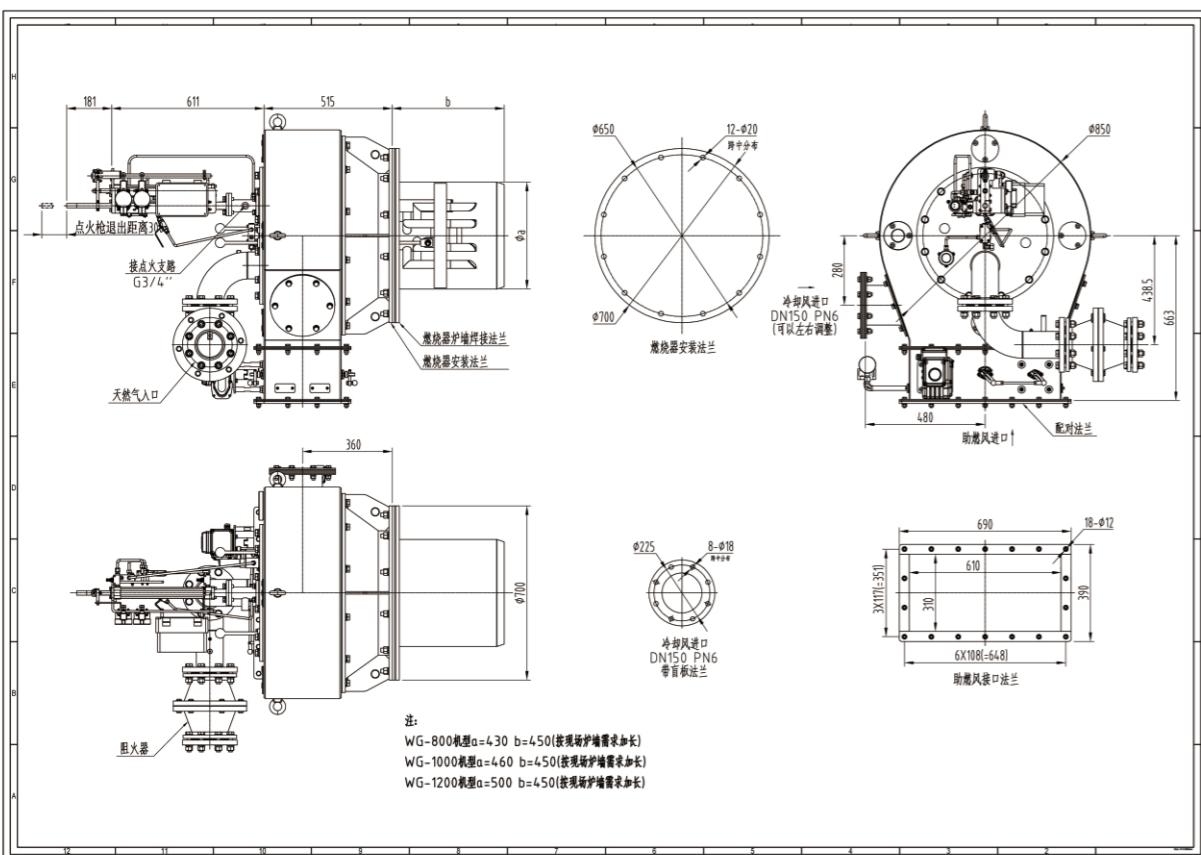
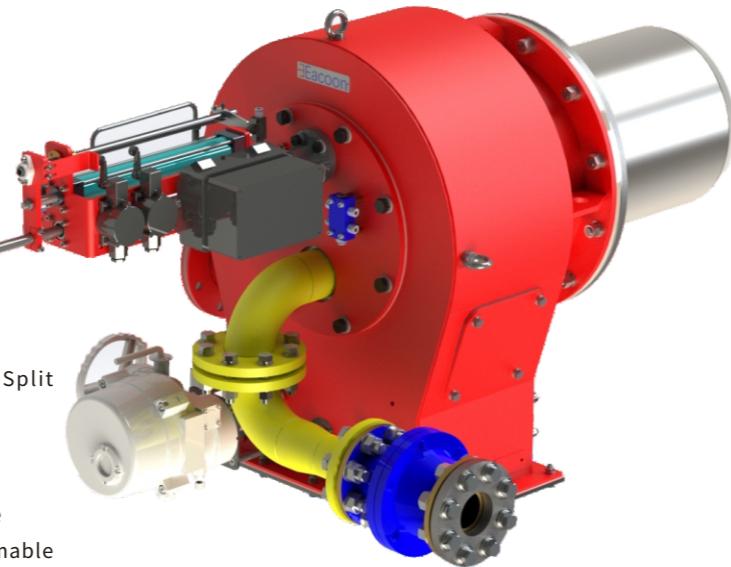
Equipment classification: Ignition propulsion type

Control method: integrated burner :programmable controller or PLC

Split burner: PLC control

Applicable furnace type: Garbage incinerator, rotary kiln secondary combustion chamber, industrial boiler

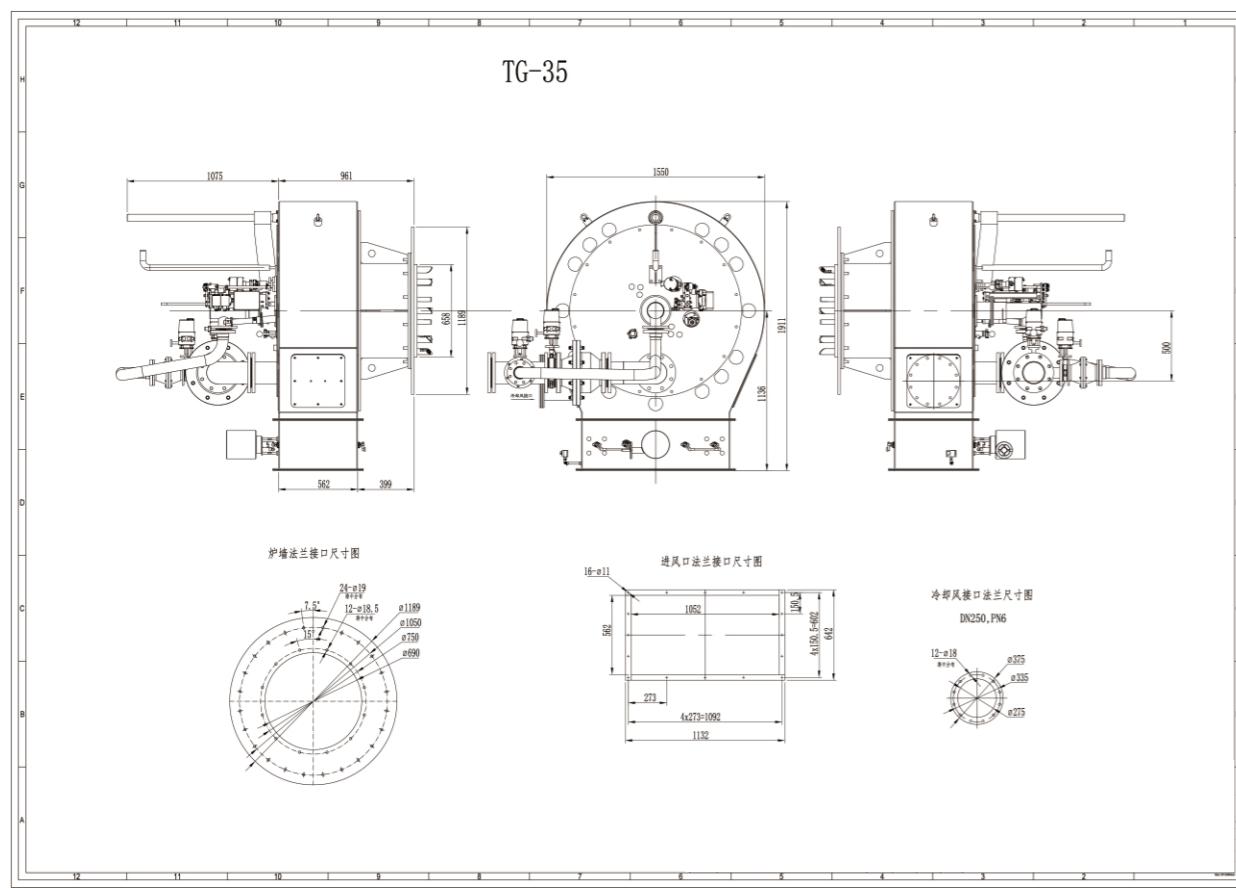
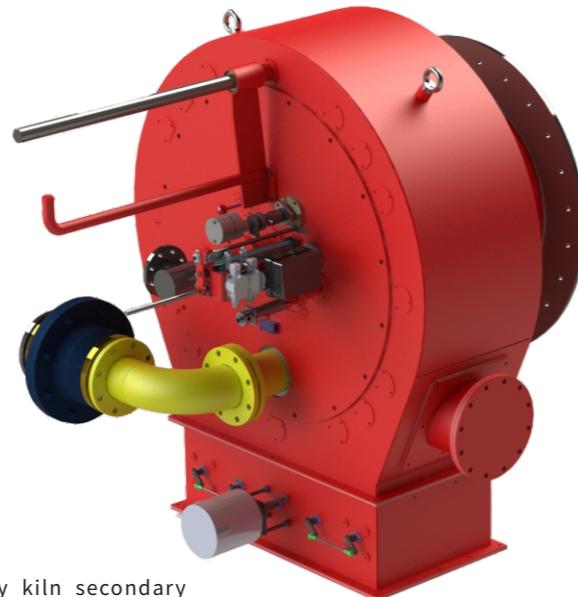
Supporting equipment: Burner +valve set piping system +BMS system (PLC)



大功率燃气机型:High power fuel gas burner model:TG-25~TG-40

功率范围: 20-70MW(天然气)
 燃料类型: 天然气
 设备形式: 分体式
 设备分类: 分体型: 点火推进型
 控制方式: plc控制
 适用炉型: 垃圾焚烧炉、回转窑二燃室、工业锅炉
 设备配套: 燃烧器+阀组撬块+BMS系统(PLC)

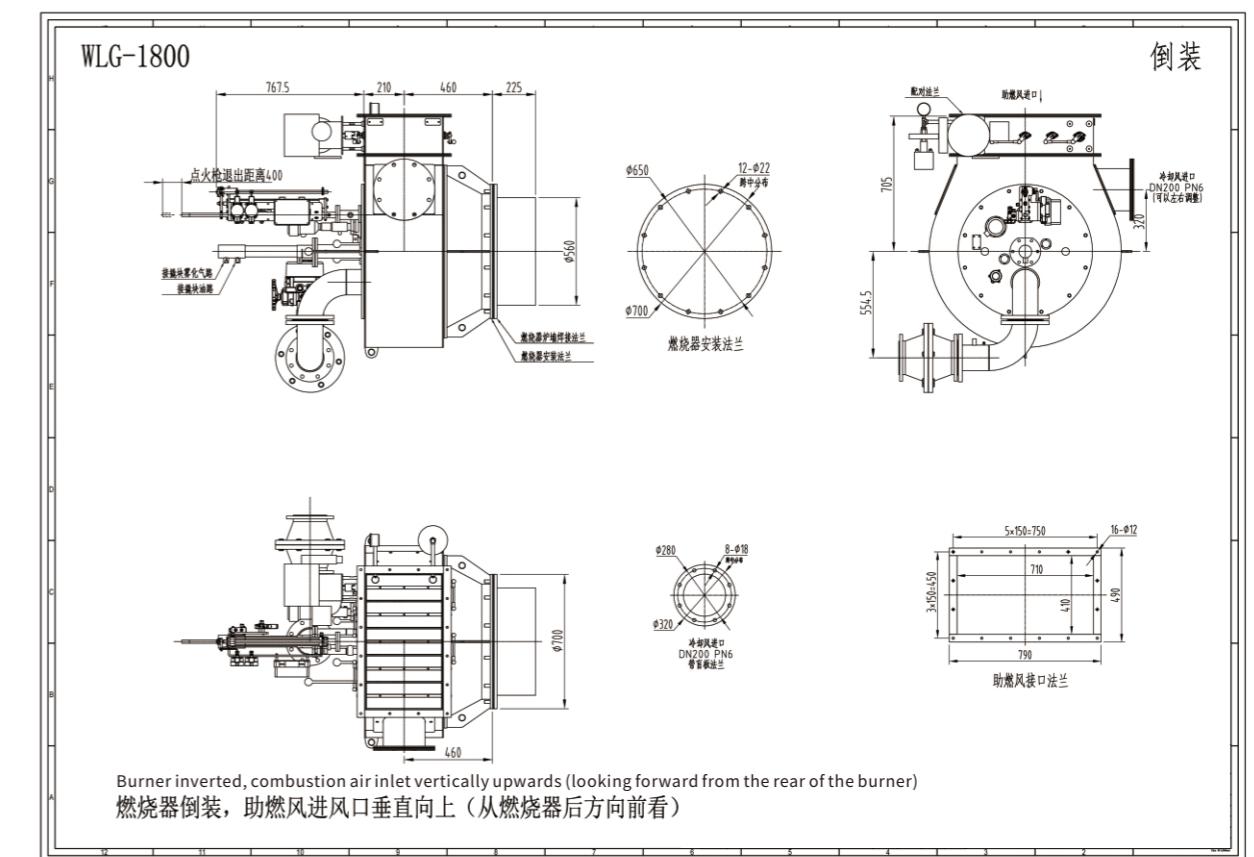
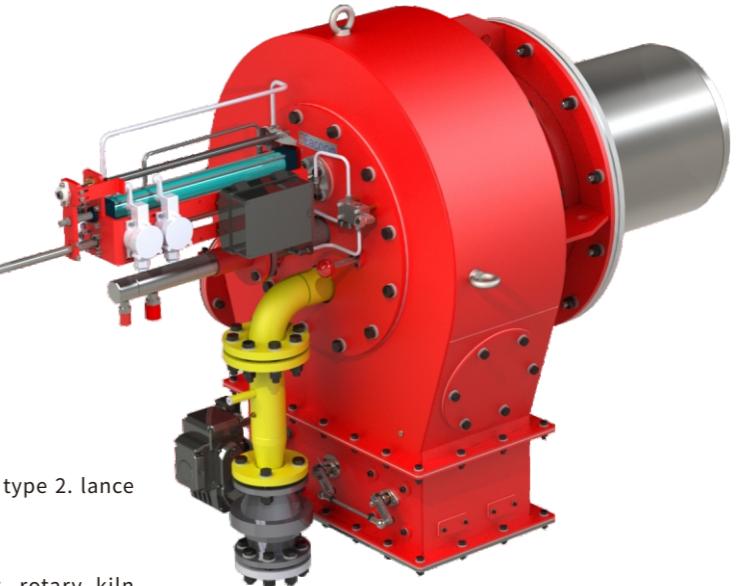
Power Range: 20-70MW (NG)
 Fuel type: Natural gas
 Machine type: Split burner
 Equipment classification: Ignition propulsion type
 Control method: PLC control
 Applicable furnace type: Garbage incinerator, rotary kiln secondary combustion chamber, industrial boiler
 Supporting equipment: Burner +valve set piping system +BMS system (PLC)



燃油、燃气两用机型: Fuel oil and gas dual purpose models WLG-400 ~WLG-2000

功率范围: 2-20MW
 燃料类型: 轻柴油、天然气
 设备形式: 分体式
 设备分类: 分体型: 1.点火推进型; 2.油枪推进型
 控制方式: plc控制
 适用炉型: 垃圾焚烧炉、回转窑二燃室、工业锅炉
 设备配套: 燃烧器+阀组撬块+BMS系统(PLC)

Power Range: 20-20MW
 Fuel type: Light diesel oil/Natural gas
 Machine type: Split burner
 Equipment classification: 1.Ignition propulsion type 2. lance propulsion type.
 Control method: PLC control
 Applicable furnace type: Garbage incinerator, rotary kiln secondary combustion chamber, industrial boiler
 Supporting equipment: Burner +valve set piping system +BMS system (PLC)



燃油、沼气两用机型：WLB系列 Fuel oil and biogas dual-use models: WLB series

功率范围: 200-1000NM³/H

燃料类型: 轻柴油、沼气

设备形式: 分体式

设备分类: 分体型: 1.点火推进型; 2.油枪推进型

控制方式: plc控制

适用炉型: 垃圾焚烧炉、回转窑二燃室、工业锅炉

设备配套: 燃烧器+阀组撬块+BMS系统(PLC)

Power Range: 20-1000NM3/H

Fuel type: Light diesel oil/Biogas

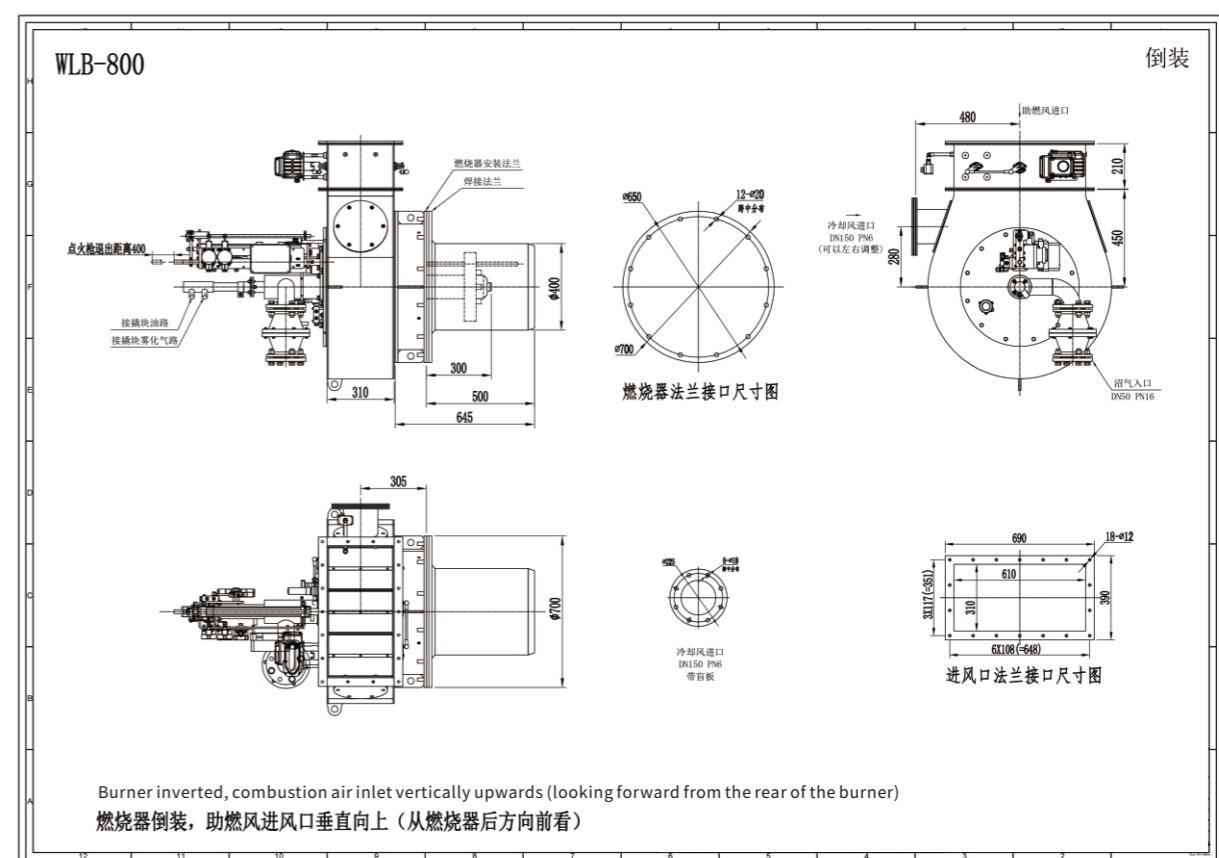
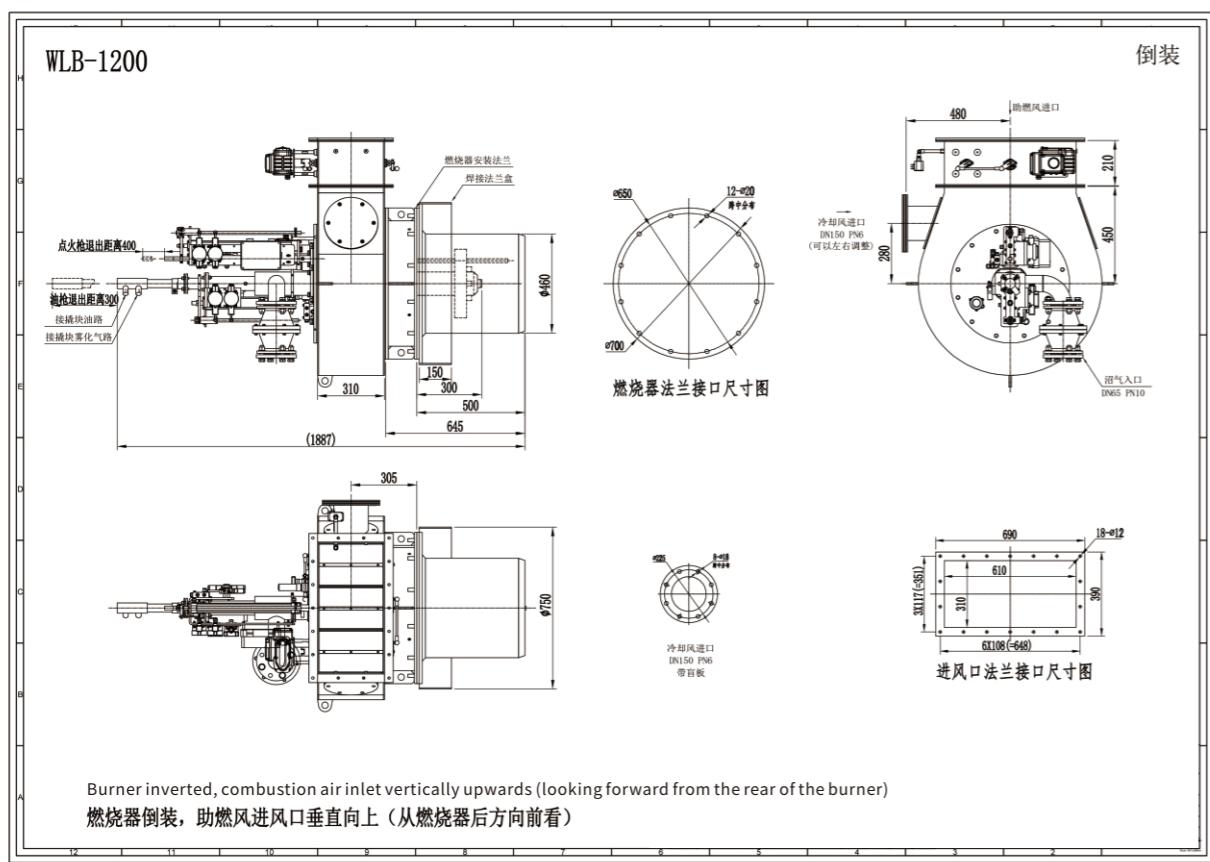
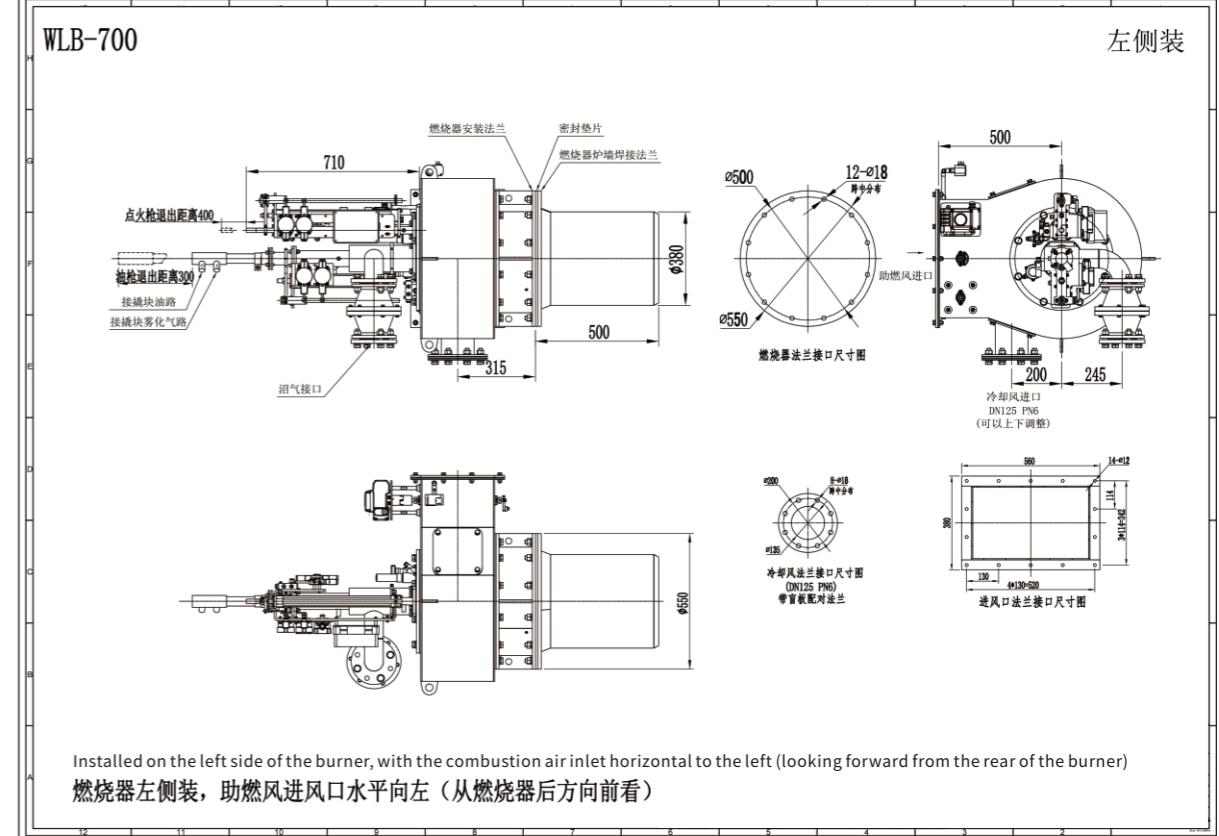
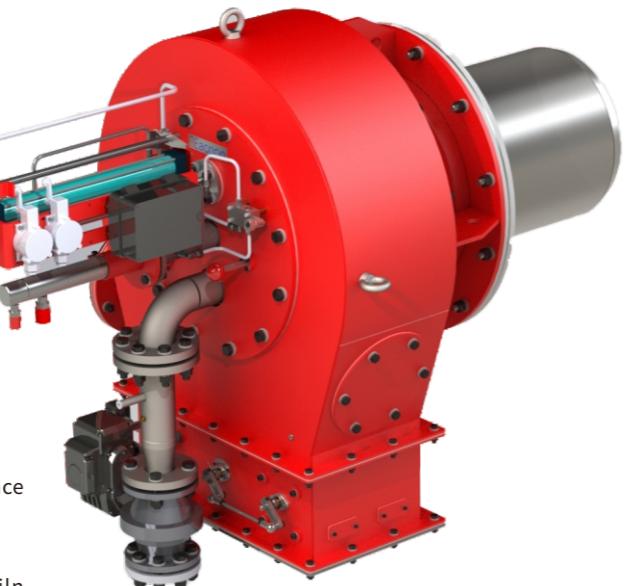
Machine type: Split burner

Equipment classification: 1.Ignition propulsion type 2. lance propulsion type.

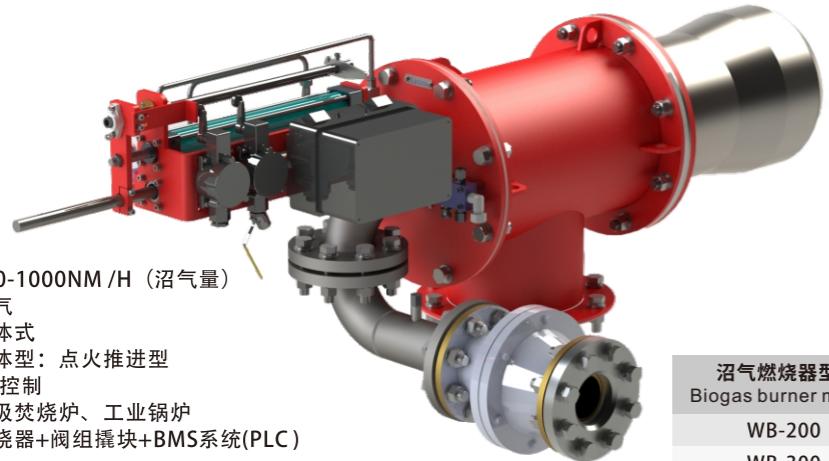
Control method: PLC control

Applicable furnace type: Garbage incinerator, rotary kiln secondary combustion chamber, industrial boiler

Supporting equipment: Burner +valve set piping system +BMS system (PLC)



沼气机型：WB系列 Biogas burner model: WB series



功率范围：200-1000NM /H (沼气量)

燃料类型：沼气

设备形式：分体式

设备分类：分体型：点火推进型

控制方式：plc控制

适用炉型：垃圾焚烧炉、工业锅炉

设备配套：燃烧器+阀组撬块+BMS系

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Power Range: 20-

Fuel type: Biogas

Machine type: Split burner

Equipment classification: Ignition propulsion type

Control methods: PLC control

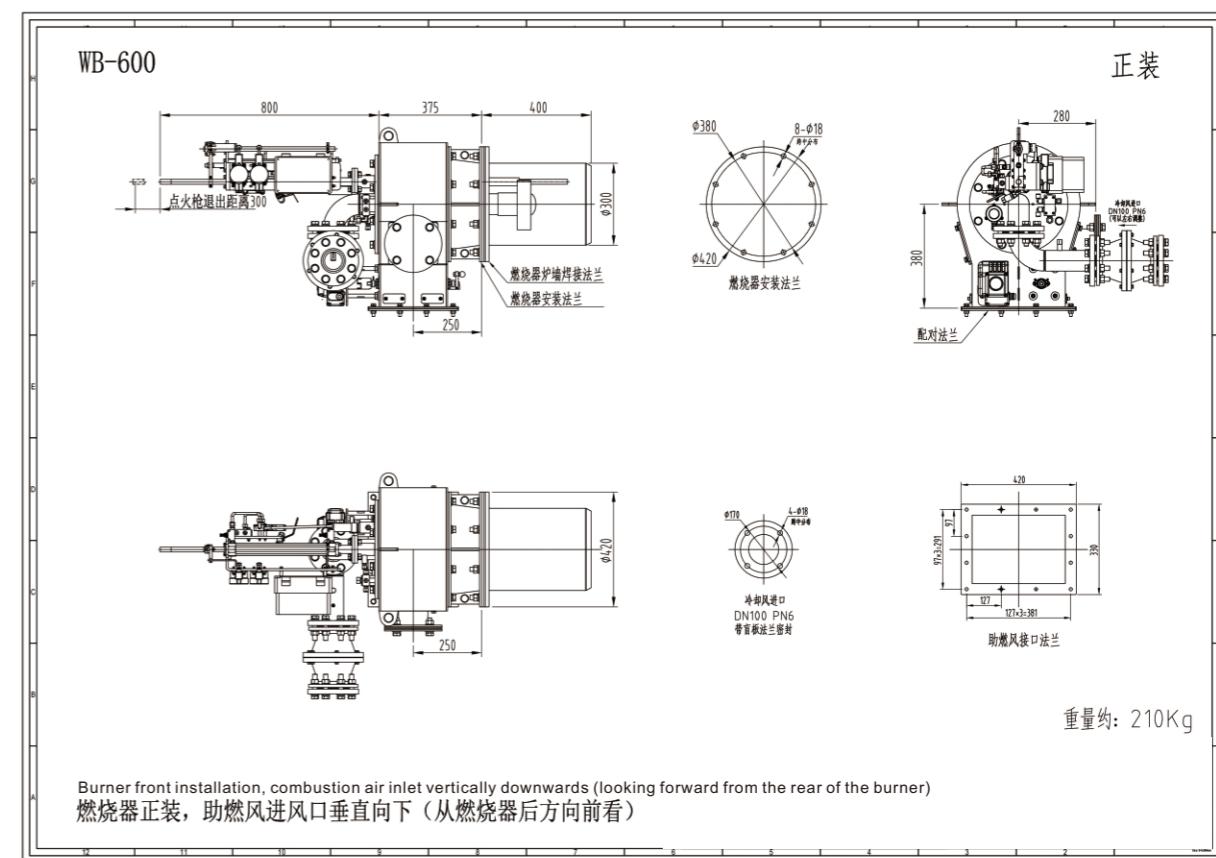
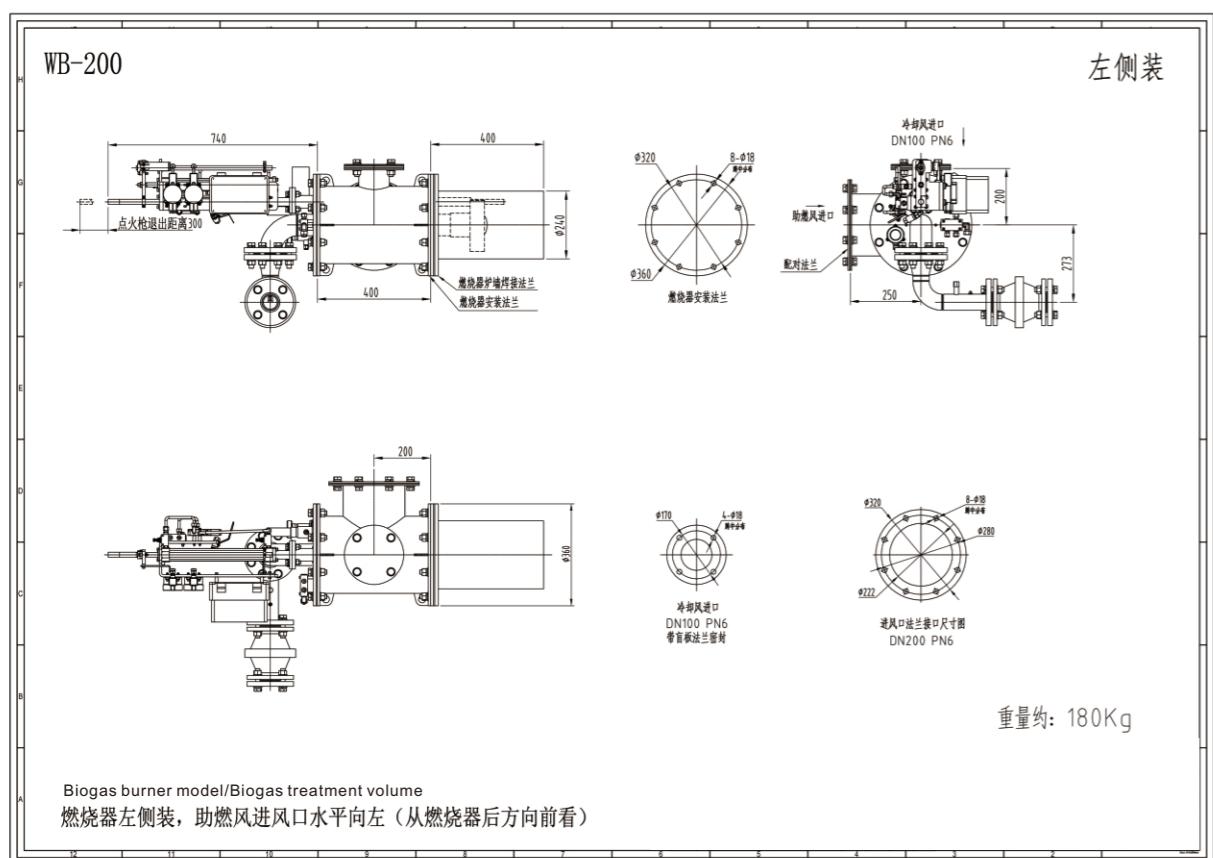
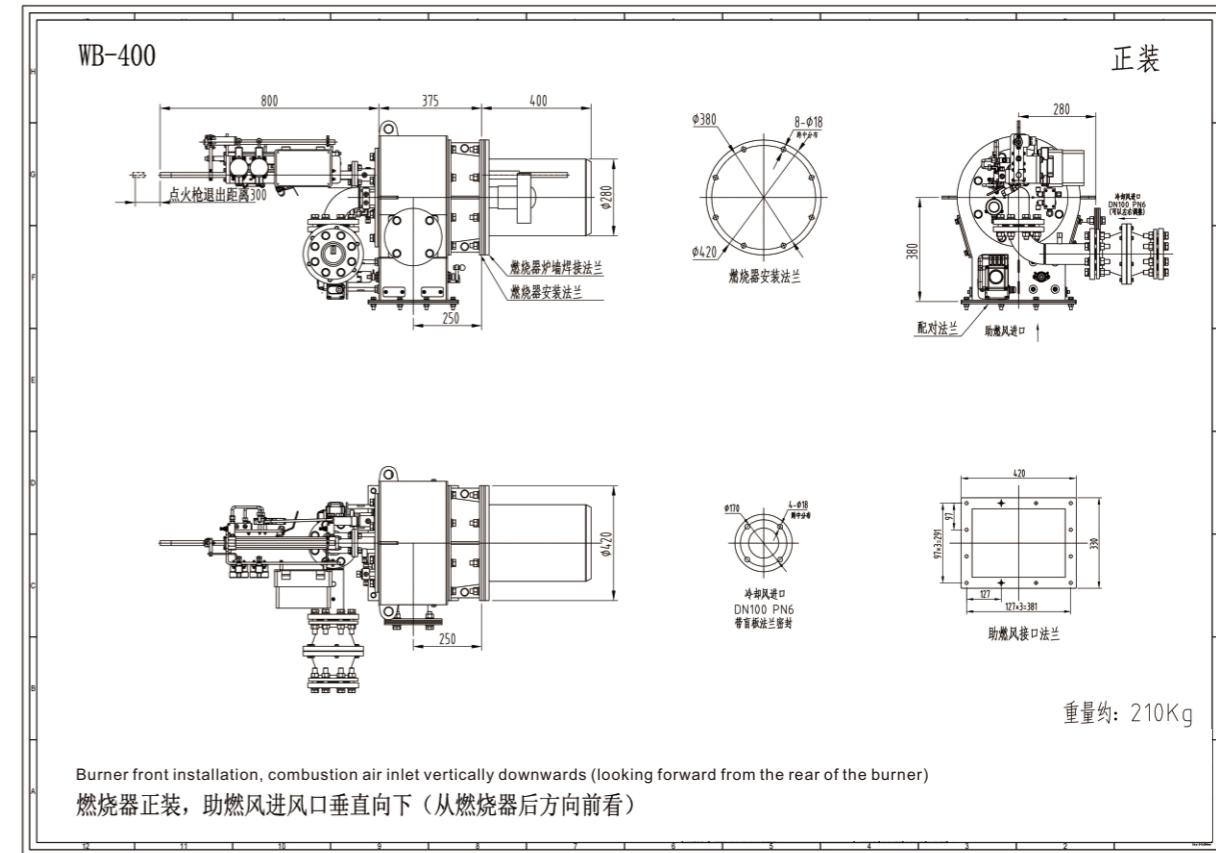
Control method: PLC control

Applicable furnace type: Garbage incinerator, industrial boiler

Supporting equipment: Burner +valve set piping

system (PLC)

沼气燃烧器型号 Biogas burner model	沼气处理量(Nm ³ /h) Biogas treatment volume
WB-200	0-299
WB-300	300-399
WB-400	400-499
WB-500	500-599
WB-600	600-699
WB-700	700-799
WB-800	800-999
WB-1000	1000-1199
WB-1200	1200-1499
WB-1500	1500



◇ 滤液回喷系统 LEACHATE BACKFLOW SYSTEM

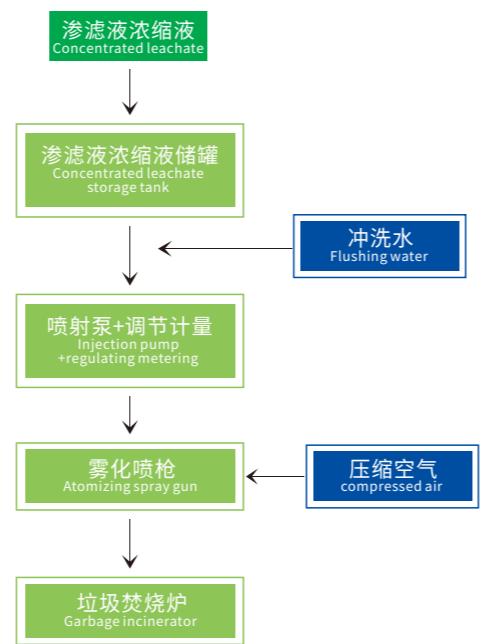
生活垃圾焚烧厂滤液纳滤和反渗透这种膜处理工艺属于纯物理的物质分离过程，其结果必然会产生污染物浓度非常高的滤液浓缩液，该浓缩液体积占滤液水量的13%~30%
The membrane treatment processes of nanofiltration and reverse osmosis for leachate from household waste incineration plants belong to pure physical material separation processes, and the result is inevitably the production of leachate concentrate with very high pollutant concentration, which accounts for 13% to 30% of the leachate volume.

可通过滤液浓缩液喷入炉内焚烧处理。浓缩液喷入量根据炉内温度来调节，炉膛温度较高时开启浓缩液的回喷。

The concentrated leachate can be sprayed into the furnace for incineration treatment. The amount of concentrated solution sprayed is adjusted according to the temperature inside the furnace. When the furnace temperature is high, the concentrated solution is turned on for back spray.

回喷工艺流程现有滤液浓缩液回喷炉膛技术是将滤液浓缩液喷入焚烧炉进行高温氧化处理。滤液回喷系统含:收集单元、喷射泵模块、滤液输送管路、自清洗模块、喷射调节模块、喷枪及附件等。

The existing technology of spraying leachate concentrate back into the furnace is to spray the leachate concentrate into the incinerator for high-temperature oxidation treatment. The leachate recirculation system includes: collection unit, injection pump module, leachate delivery pipeline, self-cleaning module, injection adjustment module, spray gun and accessories, etc.



滤液浓缩液工艺流程示意图
Diagram of the process flow of concentrated leachate

垃圾电厂燃油燃烧器性能参数表 Performance parameters table of fuel oil burner of waste to power generation

燃油燃烧器 型号 Model	功率范围(W) Power range	额定功率 (kw) Rated power	额定耗油量 (kg/h) Rated fuel oil consumption volume	供油压力 (Mpa) Oil supply pressure	雾化介质流量 (Nm³/h) Atomizing medium flow rate	助燃风量 (Nm³/h) Combustion supporting air volume	助燃风静压 (Pa) Combustion supporting air static pressure	本体冷却耗量 (Nm³/h) Body cooling consumption volume	点火方式 Ignition way	电器防护 等级 IP code	电源要求 Power requirement
WL-300	2500-3200	3.2	270	0.8-1.0	31	3760	3500	1000	高能点火	IP54	220/380V 50HZ
WL-400		4.5	380	0.8-1.0	44	5290	3500	1500	高能点火	IP54	220/380V 50HZ
WL-500	4500<Q _e ≤6300	5.5	464	0.8-1.0	54	6460	3500	1500	高能点火	IP54	220/380V 50HZ
WL-600		6.3	532	0.8-1.0	62	7400	3500	1500	高能点火	IP54	220/380V 50HZ
WL-700		7.8	658	0.8-1.0	77	9160	3500	1500	高能点火	IP54	220/380V 50HZ
WL-800	7800<Q _e ≤12000	8.5	717	0.8-1.0	83	9980	3500	2000	高能点火	IP54	220/380V 50HZ
WL-1000		10	844	0.8-1.0	98	11750	3500	2000	高能点火	IP54	220/380V 50HZ
WL-1200		12	1012	0.8-1.0	118	14100	3500	2000	高能点火	IP54	220/380V 50HZ
WL-1500		16.5	1392	0.8-1.0	162	19380	3000	2500	高能点火	IP54	220/380V 50HZ
WL-1800	16000<Q _e ≤24000	20	1687	0.8-1.0	196	23480	3000	2500	高能点火	IP54	220/380V 50HZ
WL-2000		22	1855	0.8-1.0	216	25830	3000	2500	高能点火	IP54	220/380V 50HZ
TL-25		25	2108	0.8-1.0	245	29340	3000	3000	高能点火	IP54	220/380V 50HZ
TL-28		28	2361	0.8-1.0	275	32860	3000	3000	高能点火	IP54	220/380V 50HZ
TL-30	24000-45000	30	2530	0.8-1.0	294	35220	3000	3000	高能点火	IP54	220/380V 50HZ
TL-35		35	2951	0.8-1.0	343	41080	3000	4000	高能点火	IP54	220/380V 50HZ
TL-40		40	3373	0.8-1.0	392	46950	3000	4000	高能点火	IP54	220/380V 50HZ
TL-45		45	3794	0.8-1.0	441	52820	3000	4000	高能点火	IP54	220/380V 50HZ
EL-500		4.5	380	0.8-1.0	44	5290	3500	1500	电子/高能点火	IP54	220/380V 50HZ
EL-600	4500<Q _e ≤6300	5.5	464	0.8-1.0	54	6460	3500	1500	电子/高能点火	IP54	220/380V 50HZ
EL-700		6.3	532	0.8-1.0	62	7400	3500	1500	电子/高能点火	IP54	220/380V 50HZ

◇ 沼气直燃系统 BIOGAS DIRECT COMBUSTION SYSTEM

生活垃圾焚烧厂沼气在滤液处理系统厌氯过程中产生，沼气各成分体积分数为CH450~70%、CO2 30~45%、H2S<0.5%，其他气体<5%。沼气低位热值为:16100~23300 kJ/Nm3。

Biogas from household waste incineration plants is generated during the anaerobic process of leachate treatment system. The volume fractions of various components of biogas are CH450-70%, CO2 30-45%, H2S<0.5%, and other gases<5%. The low calorific value of biogas is 16100~23300 kJ/Nm3.

沼气处理方法: Biogas treatment method:

a、将沼气排放至垃圾坑,经风机抽回至焚烧炉焚烧

Discharge the biogas into the garbage pit and extract it back to the incinerator for incineration through a fan

b、沼气发电。Biogas power generation

c、火炬直接燃烧，大气排放掉。

The torch burns directly and is discharged into the atmosphere.

d、沼气回喷入炉焚烧。

Biogas is injected back into the furnace for incineration.

e、沼气直燃加热一次风。

Direct combustion of biogas to heat primary air.

沼气直燃优势: Advantages of biogas direct combustion:

a、结构简单，便于安装，可以直接安装在直段风管上。The structure is simple, easy to install, and can be directly installed on straight section air ducts.

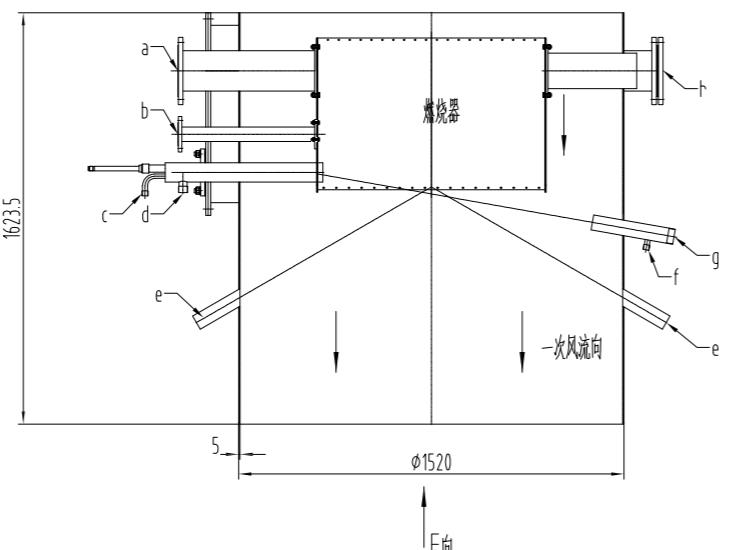
b、热能利用率高，可以直接节省蒸汽。High thermal energy utilization rate can directly save steam.

c、条件满足，可以随时投入沼气直燃（调节空预器蒸汽投入量即可，避免沼气流量高，炉温又比较高的情况，沼气的能量就只能通过减少固废的处理量）。

If the conditions are met, biogas can be directly burned at any time (adjusting the steam input amount of the air preheater can avoid high biogas flow and high furnace temperature, and the energy of biogas can only be reduced by reducing the amount of solid waste treatment).

d、燃烧器停止时不需要额外冷却(通入冷风以及耗电)。

No additional cooling is required when the burner is stopped (cold air supply and power consumption)



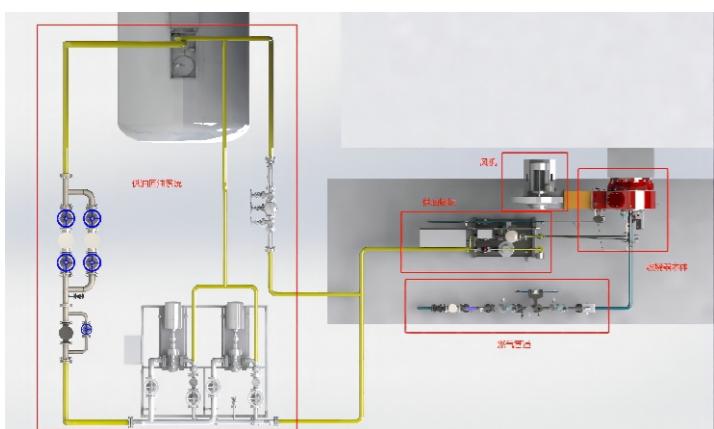
垃圾电厂燃气燃烧器性能参数表 The performance parameters of fuel gas burner for waste to power generation plant

燃油燃烧器 型号 Model	功率范围(W) Power range	额定功率 (kw) Rated power	额定耗气量 (Nm³/h) Rated gas volume	天然气供气压力 (Kpa) Supplying gas pressure	仪表压缩空气 流量 (Nm³/h) Compress airvolume of instrument	助燃风量 (Nm³/h) Combustion supporting air volume	助燃风静压 (Pa) Combustion supporting air static pressure	本体冷却耗量 (Nm³/h) Body cooling consumption volume	点火方式 Ignition way	电器防护 等级 IP code	电源要求 Power requirement
WG-300	2500-3200	3.2	322	30-50	5	3760	3500	1000	高能点火 High energy ignition	IP54	220/380V 50HZ
WG-400		4.5	453	30-50	5	5290	3500	1500	高能点火 High energy ignition	IP54	220/380V 50HZ
WG-500	4500<Q _e ≤6300	5.5	554	30-50	5	6460	3500	1500	高能点火 High energy ignition	IP54	220/380V 50HZ
WG-600		6.3	634	30-50	5	7400	3500	1500	高能点火 High energy ignition	IP54	220/380V 50HZ
WG-700		7.8	785	30-50	5	9160	3500	1500	高能点火 High energy ignition	IP54	220/380V 50HZ
WG-800	7800<Q _e ≤12000	8.5	855	30-50	5	9980	3500	2000	高能点火 High energy ignition	IP54	220/380V 50HZ
WG-1000		10	1006	30-50	5	11750	3500	2000	高能点火 High energy ignition	IP54	220/380V 50HZ
WG-1200		12	1207	30-50	5	14100	3500	2000	高能点火 High energy ignition	IP54	220/380V 50HZ
WG-1500		16.5	1660	30-50	5	19380	3000	2500	高能点火 High energy ignition	IP54	220/380V 50HZ
WG-1800	16000<Q _e ≤24000	20	2012	30-50	5	23480	3000	2500	高能点火 High energy ignition	IP54	220/380V 50HZ
WG-2000		22	2213	30-50	5	25830	3000	2500	高能点火 High energy ignition	IP54	220/380V 50HZ
TG-25		25	2514	30-50	5	29340	3000	3000	高能点火 High energy ignition	IP54	220/380V 50HZ
TG-28		28	2816	30-50	5	32860	3000	3000	高能点火 High energy ignition	IP54	220/380V 50HZ
TG-30	24000-45000	30									

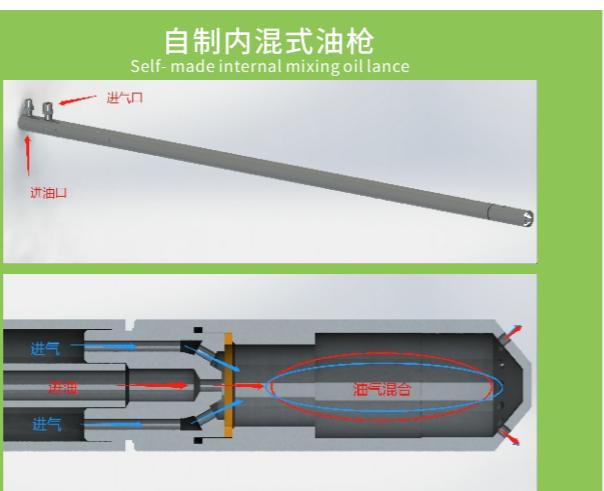
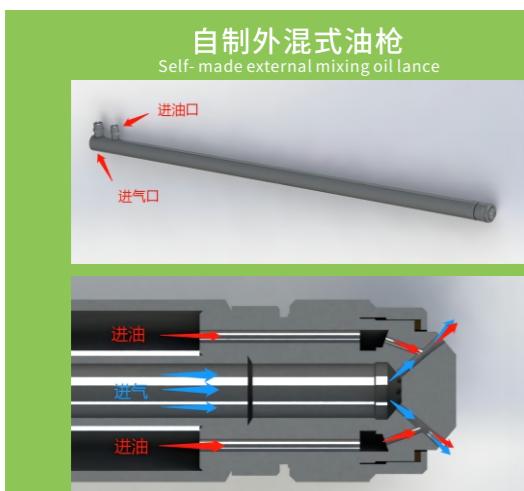
◇ 垃圾电厂供油回油系统设计 DESIGN OF OIL SUPPLY AND RETURN SYSTEM FOR GARBAGE POWER PLANT



示例项目：21107海螺泸西二期
Example project: 21107 Conch Luxi Phase II



示例项目：20060海螺枞阳
Example project: 20060 Conch Zongyang



油枪投入多个项目，标准油枪长度可适用于垃圾焚烧油机项目多种机型（标准型，推进装置型、闸门型），标准之外的规格也能满足350L/h~3500L/h,长度也可因项目需求调整。

The oil lance has been put in multiple projects, and the standard length of the oil lance can be applied to various models of waste incineration oil burner projects (standard type, propulsion device type, gate type). Specifications beyond the standard can also meet 350L/h~3500L/h, and the length can also be adjusted according to project needs.

标准油枪流量规格满足：
The standard oil lance flow specification meets:

OG38-I-Q: 350L/h 550L/h 800L/h

OG48-I-Q: 900L/h 1150L/h 1400L/h

OG57-II-Q: 1500L/h 1700L/h 2100L/h

标准油枪有效长度规格满足：
The effective length specifications of the standard oil lance meet:

OG38-I-L: 1100mm 1600mm 1900mm

OG48-I-L: 1300mm 1800mm 2100mm

OG57-II-L: 1400mm 1900mm 2200mm

◇ 工程案例 - 垃圾发电项目 ENGINEERING CASE - WASTE POWER GENERATION PROJECT



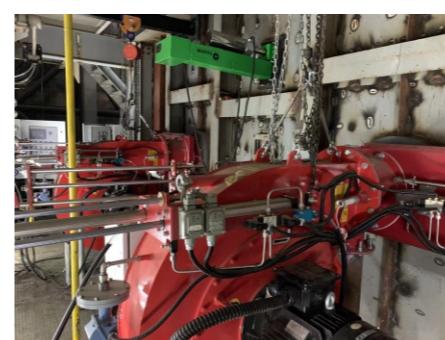
光大环保技术装备(常州)有限公司 共64个项目
Everbright Environmental Protection Technology Equipment (Changzhou) Co., Ltd. has a total of 64 projects



安徽海螺川崎工程有限公司 共32个项目
Anhui Conch Kawasaki Engineering Co., Ltd. has a total of 32 projects



重庆三峰卡万塔环境产业有限公司 共14个项目
Chongqing Sanfeng Covanta Environmental Industry Co., Ltd. has a total of 14 projects



北京首创环境科技有限公司 共12个项目
Beijing Capital Environment Technology Co., Ltd. has a total of 12 projects



广州环保投资集团有限公司 共7个项目
GRANDTOP has a total of 7 projects



上海康恒环境股份有限公司 共47个项目
Shanghai SUS Environment Co., Ltd. has a total of 47 projects

客户公司及项目数 Client company information and Project nos

序号 No.	客户 Client	项目数 Project no.	
1	光大环保技术装备（常州）有限公司	77	Everbright Environmental Protection Technology Equipment (Changzhou) Co., Ltd
2	上海康恒环境股份有限公司	50	Shanghai SUS Environment Co., Ltd
3	上海海螺川崎节能环保工程有限公司	23	Shanghai Conch Kawasaki Energy Conservation and Environmental Protection Engineering Co., Ltd
4	安徽海螺川崎工程有限公司	18	Anhui Conch Kawasaki Engineering Co., Ltd
5	北京首创环境科技有限公司	16	Beijing Capital Environmental Technology Co., Ltd
6	瀚蓝工程技术有限公司	14	Grandblue Engineering Technology Co., Ltd
7	重庆三峰卡万塔环境产业有限公司	14	Chongqing Sanfeng Covanta Environmental Industry Co., Ltd
8	中节能	10	China Energy Conservation and Environmental Protection Group Co., Ltd
9	广州环投技术设备有限公司	9	Guangzhou Environmental Investment Technology Equipment Co., Ltd
10	广州维港环保科技有限公司	6	Guangzhou Weigang Environmental Protection Technology Co., Ltd
11	上海灿州环境工程有限公司	6	Shanghai Canzhou Environmental Engineering Co., Ltd
12	青岛荏原环境设备有限公司	5	EBARA Qingdao Co., Ltd
13	西藏蕴能环境技术有限公司	5	Tibet Yunneng Environmental Technology Co., Ltd
14	南京凯盛开能环保能源有限公司	5	Nanjing Kaisheng Kaineng Environmental Protection Energy Co., Ltd
15	杭州新世纪能源环保工程股份有限公司	4	Hangzhou New Century Energy and Environmental Protection Engineering Co., Ltd
16	河南东方锅炉城发环保装备有限公司	4	Henan Dongfang Boiler Chengfa Environmental Protection Equipment Co., Ltd

◇ 工程案例 - 改造项目 ENGINEERING CASE - RENOVATION PROJECT



光大环保技术装备(常州)有限公司
Everbright Environmental Protection Technology Equipment
(Changzhou) Co., Ltd



茌平国环再生能源有限公司
Chiping Guohuan Renewable Energy Co., Ltd



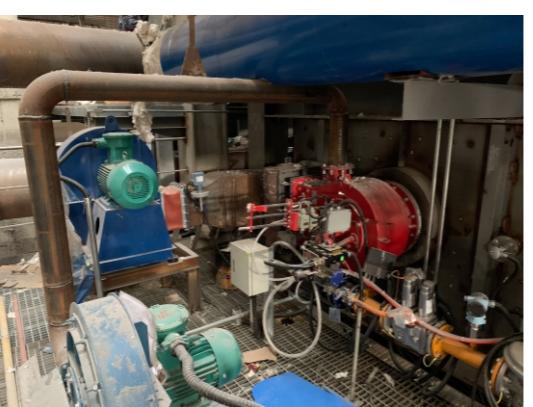
定州市瑞泉固废处理有限公司
Dingzhou Ruiquan Solid Waste Treatment Co., Ltd



雅居乐改造
AGILE Renovation



瀚蓝晋江固废处理有限公司
GRANDBLUE Jinjiang Solid Waste Treatment Co., Ltd



北京首创环境科技有限公司
Beijing Capital Environment Technology Co., Ltd

概述 Generality

在危废焚烧项目，燃烧器起点火和辅燃的作用。

In hazardous waste incineration projects, the burner serves as the starting up and auxiliary combustion.

广东意高可根据客户需求，提供合适的燃烧器以满足焚烧项目的工艺要求。

Guangdong Eacoon can provide suitable burners according to customer needs to meet the process requirements of incineration projects.

根据工艺要求的不同，危废焚烧项目燃烧器可采用标准燃烧器，也可选用组合式燃烧器。

According to different process requirements, standard burners or combination burners can be used for hazardous waste incineration projects.

此外，广东意高也为用户提供危废焚烧项目的燃烧器改造服务。

In addition, Guangdong Eacoon also provides users with burner renovation services for hazardous waste incineration projects.



行业情况 INDUSTRY SITUATION

根据国家相关规范要求，回转窑的运行温度范围为80~1050°C建议运行温度为950°C;为保证回转窑出来的烟气中未燃尽的有机成分能够在二燃室中充分燃烧，在进行二燃室的工艺设计和选型时，应满足以下要求:烟气温度可以达到1100°C以上，烟气停留时间在2s以上。

回转窑焚烧系统在投料前，通过燃烧器将回转窑和二燃室温度分别升到850°C和1100°C以上，有利于减少烟气中CO的含量。

According to relevant national regulations, the operating temperature range of the rotary kiln is 80-1050 °C . It is recommended to operate at 950 °C ; To ensure that the unburned organic components in the flue gas from the rotary kiln can be fully burned in the secondary combustion chamber, the process design and selection of the secondary combustion chamber should meet the following requirements: the flue gas temperature can reach above 1100 °C , and the flue gas residence time should be more than 2 seconds.

Before feeding, the rotary kiln incineration system increases the temperature of the rotary kiln and secondary combustion chamber to above 850 °C and 1100 °C respectively through the burner, which is beneficial for reducing the CO content in the flue gas.



危废焚烧项目: HAZARDOUS WASTE INCINERATION PROJECT:

广东意高为用户提供回转窑和二燃室标准机型燃烧器，所用燃料为轻柴油或天然气。当用户需要焚烧废液时，广东意高可提供由欧洲合作伙伴设计，采用特殊定制的燃烧器和进口废液喷枪，以满足其需求。

Guangdong Eacoon provides users with standard models burners of rotary kilns and secondary combustion chamber, using light diesel or natural gas as the fuel. When users need to burn waste liquid, Guangdong Eacoon can provide specially customized burners and imported waste liquid spray lance designed by European partners to meet their needs.

H系列分体式燃烧器 H SERIES SPLIT BURNER

主要性能 MAIN PERFORMANCE

燃料类型：天然气、轻柴油、废液、废油等

热值范围：>2000kcal/kg

输出功率：2MW-20MW

调节比：1:5

过量空气系数： $\alpha < 1.15$, 可低氧燃烧

燃烧效率：>99.99%

控制方式：PLC控制，全自动电子比例连续调节

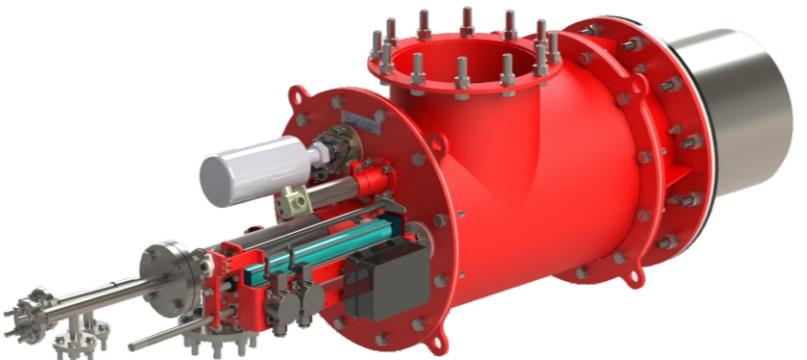
Fuel type: natural gas, light diesel, waste liquid, waste oil, etc. Calorific value range:>2000kcal/kg

Output power: 2MW-20MW, regulation ratio: 1:5

Excess air coefficient: $\alpha < 1.15$, low oxygen combustion

Combustion efficiency:>99.99%

Control method: PLC control, fully automatic electronic proportional continuous adjustment



其中：比如组合式燃烧器HLGWW-500代表一根天然气喷枪、一根柴油枪、2根废液枪。(L为柴油, G为天然气, W代表废液。)

For example, the combination burner HLGww-500 represents equipped with one natural gas spray lance, one diesel lance, and two waste liquid lances. (L represents diesel, G represents natural gas, and W represents waste liquid.)

产品简介 Product Brief Introduction

意高H系列，是危废焚烧专用燃烧器，是一款非标机燃烧器。依照国际和国内行业制造标准，对不同炉型量身设计，燃气的喷嘴为多点多角度分散的喷射通道，中心稳燃技术加强了火焰稳定，结合旋流型的空气喷射通道，加强了燃气与助燃空气的混合，从而保证了稳定充分燃烧。该燃烧器的中心区域内设计有稳燃装置，可为进入该区域内燃料提供稳定燃烧的着火温度，保证燃料稳定燃烧。本燃烧采用多项核心技术，实现稳定燃烧、超低氮排放的优异性能。

The Eacoon H series is a special burner for hazardous waste incineration, which is a non-standard burner. According to international and domestic industry manufacturing standards, different furnace types are designed with different fuel injectors. The fuel gas nozzle is a multi-point and multi-angle dispersed injection channel, and the central stable combustion technology enhances flame stability. Combined with a swirling air injection channel, the mixture of fuel gas and combustion supporting air is strengthened to ensure stable and full combustion. The central area of the burner is designed with a stable combustion device, which can provide a stable ignition temperature for the fuel entering the area and ensure stable combustion of the fuel. This combustion adopts multiple core technologies to achieve excellent performance of stable combustion and ultra-low nitrogen emissions.

产品特点 Product Features

- ◆ 适用于危废处理项目中的回转窑、二燃室、立式炉的点火和助燃；
- ◆ 根据工艺要求的不同，危废焚烧项目可采用标准燃烧器或组合式燃烧器；
- ◆ 组合式燃烧器可采用高热值废液作为辅助燃料，采用介质雾化喷枪，雾化效果好，燃烧效率高；
- ◆ 燃料包括天然气、轻柴油、高热值废液、废气等，可同时燃烧不同燃料；
- ◆ 适用于所有复杂工艺要求。
 - Suitable for starting fire and combustion support of rotary kilns, secondary combustion chambers, and vertical furnaces in hazardous waste treatment projects;
 - According to different process requirements, hazardous waste incineration projects can use standard burners or combination burners;
 - The combined burner can use high calorific value waste liquid as auxiliary fuel, and adopts a medium atomization nozzle, which has good atomization effect and high combustion efficiency;
 - Fuel includes natural gas, light diesel, high calorific value waste liquid, exhaust gas, etc., which can burn different fuels simultaneously;
 - Suitable for all complex process requirements.

危废燃烧器介绍 HAZARDOUS WASTE BURNER

Hazardous waste burner



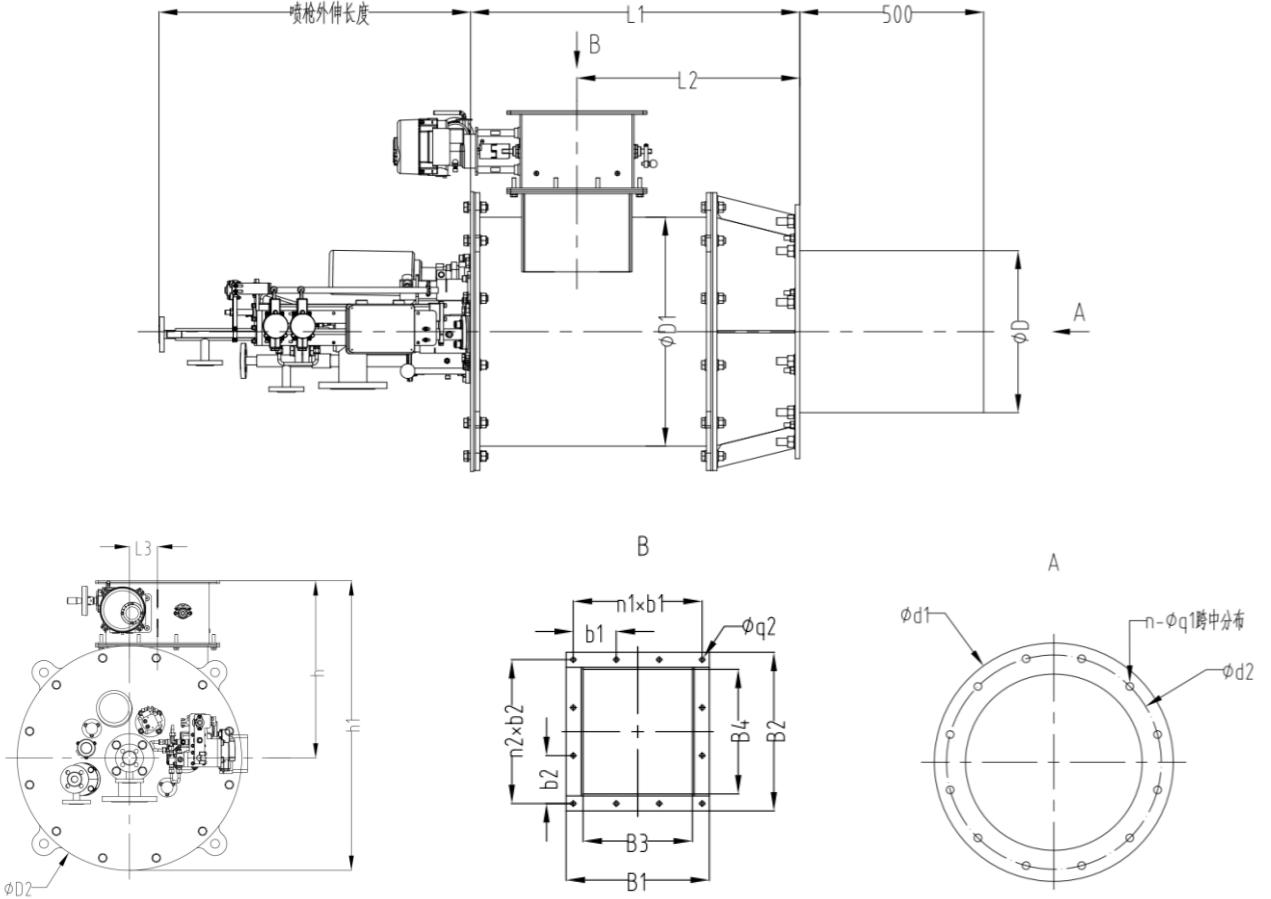
燃料类型：轻柴油、天然气、工业废液
雾化方式：机械雾化、介质雾化（压缩空气或低压蒸汽）
设备形式：分体机、独立喷枪及其他定制
适用炉型：回转窑、二燃室、立式炉
控制方式：PLC、程控器（仅用于标准机）
防爆要求：防爆或非防爆（根据客户需求）
供货范围：燃烧器+阀组撬块+BMS系统（PLC）
Fuel type: light diesel, natural gas, industrial waste liquid
Atomization method: mechanical atomization, medium atomization (compressed air or low-pressure steam)
Equipment form: split equipment, independent spray lance, and other customized equipment
Applicable furnace types: rotary kiln, secondary combustion chamber, vertical furnace
Control method: PLC, programmable controller (only used for standard equipment)
Explosion proof requirements: Explosion proof or non-explosion proof (according to customer requirements)
Supply scope: burner+ valve set piping system+BMS system (PLC)

标准燃烧器与组合式燃烧器对比 COMPARISON BETWEEN STANDARD BURNER AND COMBINED BURNER

	标准燃烧器 Standard burner	组合式燃烧器 Combined Burner
燃料 Fuel	天然气、轻柴油或汽油两用 Dual use of natural gas, light diesel, or gasoline Programmer (fixed line program)	天然气、轻柴油、废液、废气 Natural gas, light diesel, waste liquid, and exhaust gas
控制方式 control mode	程控器(固话程序) Programmer (fixed line program)	PLC
雾化方式 Atomization method	机械雾化 Mechanical atomization	介质雾化(压缩空气或低压蒸汽) Medium atomization (compressed air or low-pressure steam)
点火枪 Ignition lance	点火电极 Ignition electrode	点火燃烧 Ignition combustion
火焰检测 Flame detection	工业锅炉用火检 Fire detection in industrial boilers	化工行业用火检 Fire detection in the chemical industry
负荷调节 Load regulation	机械比调 Mechanical proportional adjustment	电子比调 Electronic proportional adjustment
防爆要求 Explosion proof requirements	非防爆配置 Non explosion-proof configuration	防爆或非防爆配置(可选) Explosion proof or non explosion proof configuration (optional)
冷却方式 Cooling method	需额外开冷却风接口 Additional cooling air interface needs to be opened	带冷却风接口和运行程序 With cooling air interface and operating program
适用场合 Applicable occasions	启炉、辅燃与停炉(需改配置) Startup, auxiliary combustion, and shutdown of the furnace(configuration needs to be changed)	启炉、辅燃、停炉 Start, auxiliary combustion, and shutdown of the furnace

H系列燃烧器外形尺寸图表 OUTLINE DIMENSION CHART OF H SERIES OF BURNERS

H系列燃烧器外形尺寸图 OUTLINE DIMENSION CHART OF H SERIES OF BURNERS

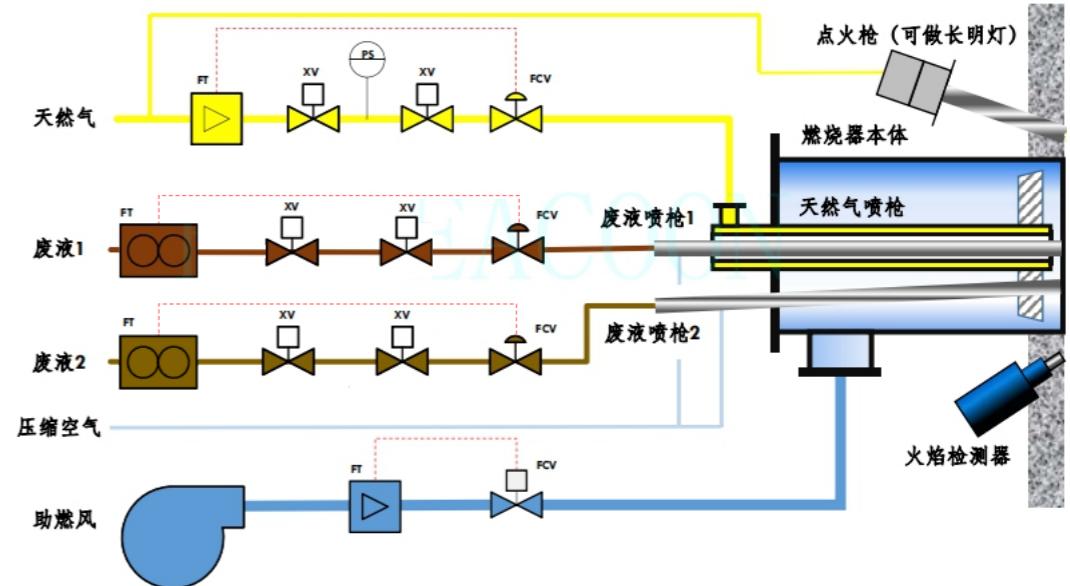


H系列燃烧器外形尺寸表 OUTLINE DIMENSION CHART OF H SERIES OF BURNERS

型号 Model	功率 (MV)	L1	L2	L3	D	D1	D2	h	h1	B1	B2	B3	B4	n1	n2	b1	b2	q2	d1	d2	n	q1
HLGW-200	2	828	584	80	340	502	610	535	840	360	320	270	230	3	3	107	93	12	610	550	12	22
HLGW-300	3	828	584	80	360	502	610	535	840	360	320	270	230	3	3	107	93	12	610	550	12	22
HLGW-400	4	828	584	80	380	502	610	535	840	360	320	270	230	3	3	107	93	12	610	550	12	22
HLGW-500	5	828	584	80	396	502	610	565	870	420	380	330	290	3	3	127	114	12	610	550	12	22
HLGW-600	6	895	606	95	440	622	760	600	980	420	380	330	290	3	3	127	114	12	690	620	12	22
HLGW-700	7	895	606	95	470	622	760	600	980	420	380	330	290	3	3	127	114	12	690	620	12	22
HLGW-800	8	895	651	21	490	622	760	645	1025	540	370	460	290	5	3	100	110	12	690	620	12	22
HLGW-900	9	895	651	21	490	622	760	645	1025	540	370	460	290	5	3	100	110	12	690	620	12	22
HLGW-1000	10	895	651	21	490	622	760	645	1025	540	370	460	290	5	3	100	110	12	690	620	12	22

其中：比如组合式燃烧器HLGWW-500代表带一根天然气喷枪、一.根柴油枪、2根废液枪。(L为柴油，G为天然气，W代表废液。)
For example, the combination burner HLGww-500 represents equipped with one natural gas spray lance, one diesel lance, and two waste liquid lances. (L represents diesel, G represents natural gas and W represents waste liquid.)

组合式燃烧器系统经典配置 TYPICAL SETTING OF COMBINED BURNERS SYSTEM



怎样才算一个好的组合式燃烧器？
How to be a good combined burner?

好的雾化效果 Good atomization effect

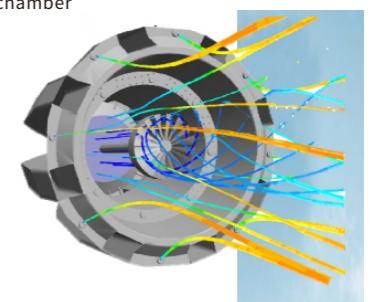
- 雾化颗粒直径小=>完全且快速燃烧
Small diameter of atomized particles=>Complete and rapid combustion
- 雾化颗粒布置均匀=>与助燃空气混合更充分
Atomized particles uniformly=>More fully mixed with combustion supporting air



好的空气动力流场设计 Good aerodynamic flow field design

旋流风与直流风的速度、角度分配 Speed and angle distribution of swirling air and direct airflow

- 稳定燃烧 Stable combustion
- 废液颗粒与助燃空气快速混合=>完全燃烧
Rapid mixing of waste liquid particles with combustion supporting air=>complete combustion
- 火焰形状->符合回转窑或二燃室尺寸要求
Flame shape ->meets the size requirements of the rotary kiln or secondary combustion chamber



好的系统集成 Good system integration

- 阀组撬块、火检、点火枪等仪表
Valve set piping system, flame detectors, ignition lances, and other instruments
- BMS系统符合安全运行规范和客户要求
The BMS system complies with safe operating standards and customer requirements

柴油/废液喷嘴 DIESEL/WASTE LIQUID NOZZLE

由于回转窑的结构偏细长型，二燃室的结构为短粗型。因此回转窑燃烧器的喷枪选用的是雾化角度偏小型，二燃室选用雾化角度偏大型。

回转窑燃烧器（内喷枪）/独立喷枪选用的喷嘴（30-40°）

二燃室燃烧器（内喷枪）/独立喷枪选用的喷嘴（70-120°）

Due to the slender structure of the rotary kiln, the structure of the secondary combustion chamber is short and thick. Therefore, the spray lance for the rotary kiln burner is selected with a smaller atomization angle, while the secondary combustion chamber is selected with a larger atomization angle.

Rotary kiln burner (internal spray lance)/nozzle selected for independent spray gun (30-40°)

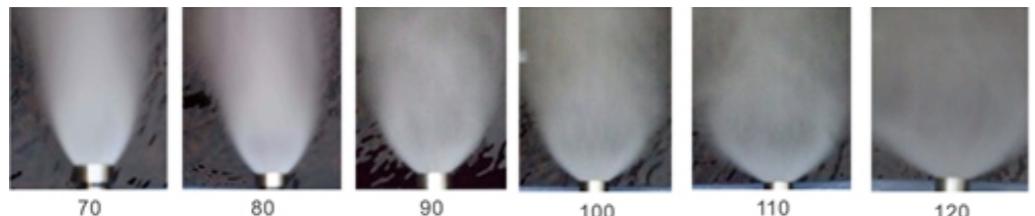
Secondary combustion chamber burner (internal spray lance)/nozzle selected for independent spray gun (70-120°)



小角度喷枪雾化示意图
Photo of small angle spray lance atomization



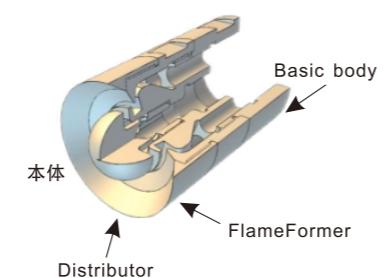
大角度喷枪雾化示意图
Photo of large angle spray lance atomization



70 80 90 100 110 120

DUMAG/CS 超音速喷枪 SUPersonic SPRAY LANCE

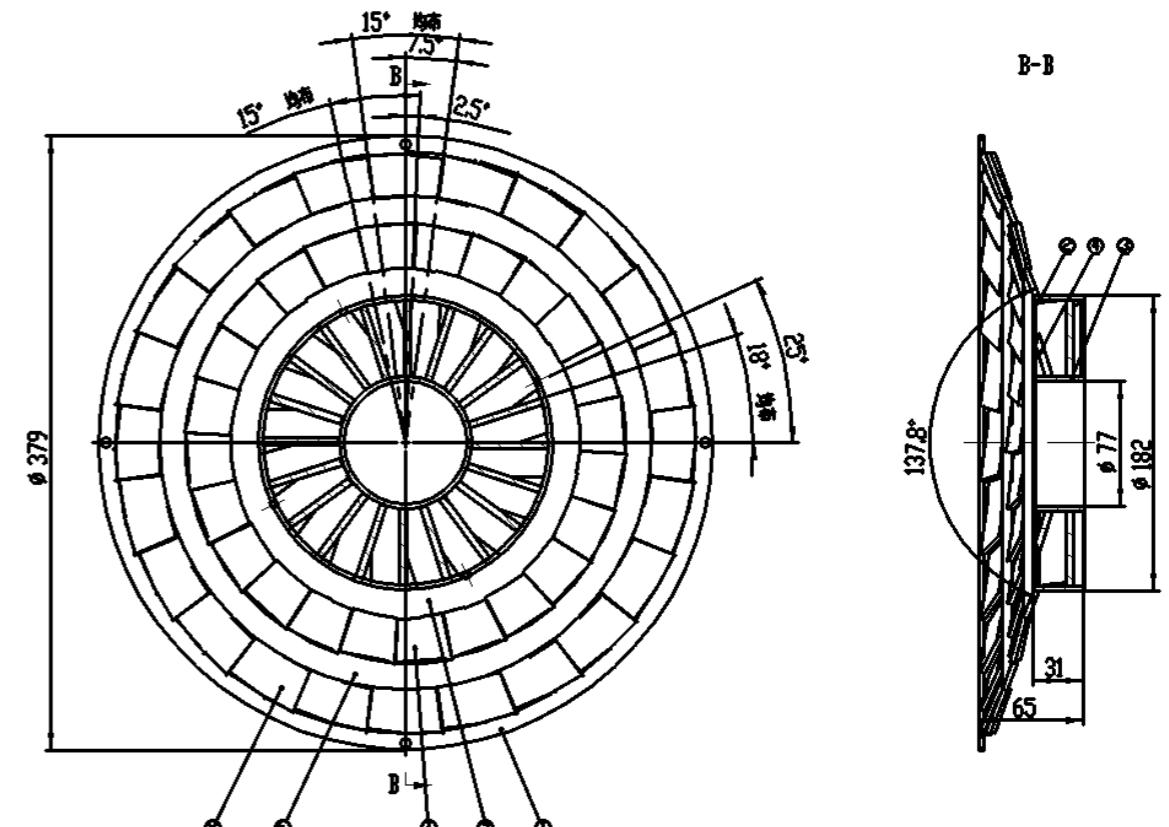
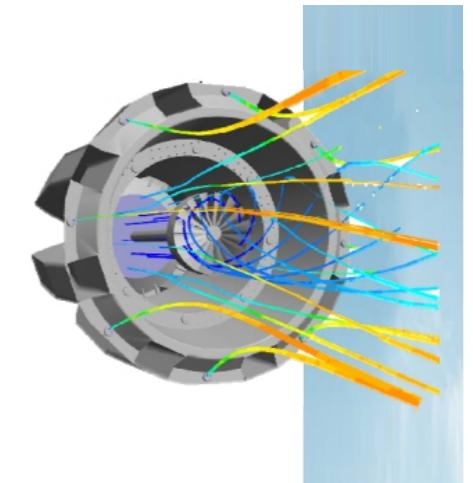
- 进口欧洲著名品牌
- 雾化颗粒平均直径小于100 μm, Dv0.5在40-70 μm间
- 雾化颗粒均匀实心锥形分布
- 可选不同喷射角度, 满足炉膛尺寸要求
- 废液雾化压力低 (0.1-3bar)
- 外混式喷嘴
- 流量控制范围可高达1:10
- 耐高温耐腐蚀 (喷枪316L材质, 喷嘴310S或哈氏合金材质)
- 防堵塞 (可通过固体尺寸1mm-1.5mm)
- 易拆装



- Import famous European brands
- 100um. Dv0.5 in 40-70 um! The average diameter of atomized particles is less than 100um. Dv0.5 is between 40 and 70 um
- Uniform solid conical distribution of atomized particles
- Optional different injection angles to meet furnace size requirements
- (0.1-3bar) Low atomization pressure of waste liquid (0.1-3bar)
- External mixing nozzle
- 1:10 Flow control range can reach up to 1:10
- High temperature and corrosion resistance (spray gun 316L material, nozzle 310S or Hastelloy material)
- Anti clogging (can be achieved through solid size of 1mm to 1.5mm)
- Easy to disassemble and assemble

结构特点 STRUCTURAL FEATURES

- 燃烧器本体欧洲公司设计, 为危废项目量身定做
 - 喷嘴选型, 确保合适喷射角度
 - 特殊的旋风盘 (稳焰盘)
 - 旋流风和直流风的分配, 形成紊流, 有利于燃料和助燃风混合
 - 满足火焰形状的要求, 回转窑长细火焰, 二燃室短粗火焰, 火焰不接触耐火材料
 - 保持火焰稳定
 - 风门和进风口角度的设定, 加强旋流
 - 耐火材料喇叭口开口角度与燃烧器相配合
- Burner body designed by European company, tailored for hazardous waste projects
 - Nozzle selection to ensure appropriate spray angle
 - Special whirlwind plate (diffuser)
 - The distribution of swirling air and direct airflow forms turbulent flow, which is conducive to the mixing of fuel and combustion air to meet the requirements of flame shape. The rotary kiln has a long and thin flame, a short and thick flame in the secondary combustion chamber, and the flame does not come into contact with refractory materials
 - Maintain flame stability
 - Setting the angle of the air door and air inlet to enhance the swirling flow
 - Match the opening angle of the refractory bell mouth with the burner



高能点火装置 High energy ignition device

- ◆ 工作电压 220VAC, 50Hz
- ◆ 工作电流 4A
- ◆ 工作周期(通/断) ≤ 5/60S
- ◆ 工作温度 -20°C~85°C
- ◆ 可使用轻柴油或天然气点火
- ◆ 需带点火杆退出装置
- ◆ 包含点火模块
- ◆ 需要配置独立点火枪
- 50Hz Working voltage 220VAC, 50Hz
- 4A Working current 4A
- Working cycle (on/off) ≤ 5/60S
- Working temperature -20 °C~85 °C



- Light diesel or natural gas can be used for ignition
- Requires ignition rod exit device
 - Including ignition module
 - Need to configure an independent ignition lance

点火器放电电压低、点火能量大，单次点火能量为20焦耳，火花频率为10~15次/秒，具有极强的适应环境的能力。点火枪头与枪体用优质不锈钢制成，可耐较高温度;点火枪中心电路阻值<0.05Ω，抗电强度为DC8000V。

The igniter has low discharge voltage and high ignition energy, with a single ignition energy of 20 joules and a spark frequency of 10-15 times/second, demonstrating strong adaptability to the environment. The ignition lance head and body are made of high-quality stainless steel, which can withstand high temperatures; The resistance value of the central circuit of the ignition lance is less than 0.05Ω, and the electrical strength is DC8000V.

高压点火屏蔽电缆两端接头用特制不锈钢制成，主体部分有金属软管保护，抗电强度为DC4000V，最小弯曲半径为64mm。点火电缆工作环境温度为-30°C~110°C，长度能满足点火枪进退及安装位置的需要。

The connectors at both ends of the high-voltage ignition shielding cable are made of special stainless steel, and the main part is protected by metal hoses. The electrical strength is DC4000V, and the minimum bending radius is 64mm. The working environment temperature of the ignition cable is -30 °C~110 °C, and the length can meet the needs of the ignition lance's advance, retreat, and installation position.

点火燃烧器 Ignition burner

- ◆ 工作电压 230VAC, 50/60Hz
- ◆ 输出电压 5KV
- ◆ 工作温度 -30 ° C~75 ° C
- ◆ 可使用轻柴油或天然气点火，功率范围 120~300KW
- ◆ 火焰长度250~600mm，无需退出装置
- ◆ 包含点火模块，带火焰检测离子棒系统 和燃烧器控制模块
- ◆ 如有必要，可做长明灯使用



燃油点火燃烧器可持续通入流量较小的燃油/天然气和适量的燃烧空气，点火成功后即可用作长明灯。

The fuel ignition burner can continuously inject fuel/natural gas with a small flow rate and an appropriate amount of combustion air. After successful ignition, it can be used as a permanent light.

燃烧器配置的独立一体的进口点火燃烧器，仅在启动燃烧器时使用，主燃烧器点着后关闭点火燃烧器。点火燃烧器枪体为可耐较高温度的不锈钢制。点火燃烧器在项目运行后必须持续通入压缩空气作为冷却风，同时压缩空气也作为部分助燃空气，且枪身与安装套管之间间隙需通入冷却风。

The independent and integrated imported ignition burner configured for the burner is only used when starting the burner. After the main burner is lit, the ignition burner is turned off. The ignition burner lance body is made of stainless steel that can withstand higher temperatures. The ignition burner must be continuously supplied with compressed air as cooling air after project operation, while the compressed air also serves as part of the combustion air, and cooling air must be supplied between the lance body and the installation sleeve.

◆ 火焰检测器 FLAME DETECTOR

火焰检测器是锅炉炉膛安全监控系统（简称FSSS）中的重要设备，其作用是根据火焰的燃烧特性对燃烧工况进行实时检测。在燃烧器点火或炉膛内部正常运行过程中，一旦监测到的火焰燃烧状态不满足检测条件或熄火时，按一定方式给出信号送至燃烧器控制柜或DCS，燃烧器显示故障警且停止相关燃烧器系统内所有阀组撬块的燃料供应。

The flame detector is an important equipment in the boiler furnace safeguard supervisory system (abbreviation FSSS), whose function is to detect the combustion conditions in real-time based on the combustion characteristics of the flame. During the ignition of the burner or normal operation inside the furnace, if the monitored flame combustion status does not meet the detection conditions or extinguishes, a signal will be sent to the burner control cabinet or DCS in a certain way. The burner will display a fault alarm and stop the fuel supply to all valve set piping system in the relevant burner system.

功能描述 Function Description

- ◆ D-LX 200一体化火检通过内部集成火焰传感器来检测和分析火焰辐射信号。
- ◆ 火焰的强度通过4-20mA电流数出来表示。
- ◆ 火焰参数可通过RS485和IRDA接口传输到PC机上。
- The D-LX 200 integrated flame detector detects and analyzes flame radiation signals through an internal integrated flame sensor.
- The intensity of the flame is represented by a current of 4-20mA.
- Flame parameters can be transmitted to a PC through RS485 and IRDA interfaces.



Durag (杜拉格) 火检

特点: Features:

- ◆ 敏感度高
- ◆ 工作温度从-40°C 到 +85°C
- ◆ 双通道设计
- ◆ 测量火焰闪烁频率
- ◆ 单燃烧器和燃料选择
- High sensitivity
- Working temperature from -40 °C to +85 °C
- Dual channel design
- Measurement of flame flicker frequency single burner and fuel selection

火焰检测器的使用及特点: The use and features of flame detectors:

- ◆ 主燃烧器将配置一台紫外火焰探头和一台红外火焰探头。
- ◆ 适用于燃气、轻油、重油、煤、化学废气等所有可燃烧的燃料仅在启动燃烧器时使用，主燃烧器点着后关闭点火燃烧器。
- ◆ 被监测火焰的频率可选，可有效滤除灯光及太阳光等一些不需要监测的光源。
- ◆ 电子监控自运算处理，免除背光的干扰。
- ◆ 正确的布置位置。
- The main burner will be equipped with one ultraviolet flame probe and one infrared flame probe.
- Suitable for all combustible fuels such as gas, light oil, heavy oil, coal, and chemical waste gas, which can only be used when starting the burner. After the main burner is lit, turn off the ignition burner.
- The frequency of the monitored flame can be selected, which can effectively filter out some light sources that do not need to be monitored, such as lighting and sunlight.
- Electronic monitoring and self-operation processing, eliminating interference from backlight.
- Correct placement.



◆ 阀组撬块 VALVE SET PIPING SYSTEM

意高燃烧器阀组运用3D建模的方式，采用密集型布置，将燃油、燃气、废液等管路的各种仪表阀门集成并模块化组装为阀组撬块。燃烧器阀组撬块化设计的优势有：撬装化装置的大部分安装工作在工厂内完成，因而可大大减少工程现场施工作业工程量；缩短工程安装周期，同时有利于保证安装质量，便于搬迁和运输。

The valve group of burner adopts a 3D modeling method and a dense layout, integrating and modularizing various instrument valves of fuel, gas, waste liquid, and other pipelines into a valve set piping system. The advantages of the valve set piping system of the burner include:

Most of the installation work of the device is completed in the factory, which can greatly reduce the amount of on-site construction work; Shorten the installation period of the project, while ensuring installation quality and facilitating relocation and transportation

燃油/废液燃烧器撬块



相对于传统的建设形式，
撬装化装置具有下列优势：

- ◆ 减少现场施工量，缩短施工周期。
- ◆ 提高工程建设效率，保证工程建设质量。
- ◆ 节约工程资源，降低工程投资。
- ◆ 避免现场缺件，漏件
- ◆ 方便运行维护。

Compared to traditional construction, valve set piping system have the following advantages:

- Reduce on-site construction capacity and shorten construction cycle
- Improve the efficiency of engineering construction and ensure the quality of engineering construction
- Save engineering resources and reduce engineering investment
- Avoid missing parts on site
- Convenient operation and maintenance

◆ 燃烧器控制柜 CONTROL CABINET FOR BURNER

意高燃烧器使用西门子S7系列PLC作为燃烧器的控制系统，采用PLC和触摸屏两级控制结构方式，通过PLC进行程序控制、远方控制及就地操作，由触摸屏对整个工艺系统进行集中监视、管理和自动顺序控制。PLC控制器用于生产过程中的逻辑和顺序控制、闭环调节控制、数据采集、计算和过程I/O处理等，具备性能稳定、可扩展、抗干扰强等特点。PLC控制系统预留与DCS总线上位机进行数据传输的通讯接口。

Eacoon burner uses Siemens S7 series PLC (programmable Logic Controller) as the control system, adopting a two-level control structure of PLC and touch screen. The PLC is used for program control, remote control, and local operation, and the touch screen is used for centralized monitoring, management, and automatic sequential control of the entire process system. The PLC controller uses logic and sequential control, closed-loop adjustment control, data acquisition, calculation, and process I/O processing during production, and has the characteristics of stable performance, scalability, and strong anti-interference. The PLC control system reserves a communication interface for data transmission with the DCS bus supervisory computer.

PLC控制系统安置在PLC控制柜内，PLC柜上安装有触摸屏操作面板，触摸屏（人机界面）用于参数设定、操作和修改、报警和事故显示、过程画面显示、系统状态显示等。

The PLC control system is installed inside the PLC control cabinet, which is equipped with a touch screen operation panel. The touch screen (human-machine interface) is used for parameter setting, operation and modification, alarm and accident display, process screen display, system status display, etc.

PLC控制柜的工作方式有两种：就地单步操作和远方程控操作。就地控制柜上有就地/远方切换开关，就地控制柜与DCS系统采用硬接线方式进行联系。在就地控制时，就地控制柜上的按钮操作应完全满足燃烧器的调试和运行的要求；远方控制时，DCS系统指令通过硬接线方式传至就地控制柜，由就地控制柜实现燃烧器的正常调试和运行。

There are two working methods for PLC control cabinets: local single step operation and remote program control operation. There is a local/remote switch on the local control cabinet, which is connected to the DCS system through hard connection. During local control, the button operation on the local control cabinet should fully meet the requirements for burner debugging and operation; During remote control, DCS system commands are transmitted to the local control cabinet through hard wiring, which enables the normal debugging and operation of the burner.



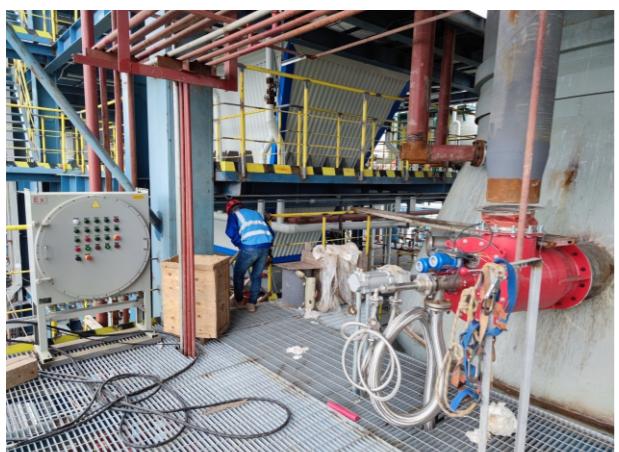
意高还可根据用户需求量身设计PLC控制柜、变频柜等，满足用户各种需要！
Eacoon can also customize PLC control cabinets, frequency conversion cabinets, etc., according to user needs to meet various demands.

主要功能如下：The main functions are as follows:

- ◆ 自动启动/停止 Automatic start/stop
- ◆ 天然气压力低保护 Low natural gas pressure protection
- ◆ 起炉助燃 oiler start combustion supporting
- ◆ 就地/远程控制切换 Local/remote control switching
- ◆ 紧急停止功能 Emergency stop function
- ◆ 炉膛火焰检测功能 Furnace flame detection function
- ◆ 灭火保护 Outfire protection
- ◆ 前/后吹扫模式 Front/rear blowing mode
- ◆ 就地/远程点火 local/remote ignition
- ◆ 管道全气动控制 Pipeline fully pneumatic control

光大绿保固废处置（南通）项目

EVERBRIGHT GREEN PROTECTION SOLID WASTE DISPOSAL (NANTONG) PROJECT



二燃室燃烧器
Secondary combustion chamber burner



回转窑燃烧器
Rotary kiln burner

上海电气南通项目

SHANGHAI ELECTRIC NANTONG PROJECT



项目位于江苏省海门市，建设一套日处理量70吨，年处理能力21000吨危险废物焚烧处置系统。

The project is located in Haimen City, Jiangsu Province, and aims to construct a hazardous waste incineration and disposal system with a daily processing capacity of 70 tons and an annual processing capacity of 21000 tons.

本项目需同时处理三种共七路废液,配置三套组合式燃烧器(一台为回转窑用,两台为二燃室用),辅助柴油(备用)、天然气这两种燃料同时燃烧。其中,回转窑燃烧器为:天然气+2种废液,两台二燃室燃烧器为:天然气+1种废液定制机型;以及配套多套废液独立喷枪系统。

This project requires the simultaneous treatment of three types and seven pipes of waste liquid, equipped with three sets of combined burners (one for rotary kilns and two for secondary combustion chambers), to assist in the simultaneous combustion of diesel (backup) and natural gas. Among them, the rotary kiln burner is: natural gas+2 types of waste liquid, and the two secondary combustion chamber burners are: natural gas+1 type of waste liquid customized models; And supporting multiple sets of independent waste liquid spray lance systems.

海安危废处置项目作为上海电气重点示范项目，本项目要求同时处理4种废液、一种废气，在安全稳定的前提下实现多燃料同时燃烧。鉴于该项目的情况较为复杂，意高技术团队经过反复沟通、模拟、并确认了初步设计方案:为这条焚烧线配置两套燃烧器 (一台为回转窑用，一台为二燃室用)，辅助柴油等燃料同时燃烧。最终，该项目于2018年11月进行燃烧器安装、调试、试运行等工作，在2019年1月便成功进行点火仪式，达到了多燃料稳定燃烧、且满足排放要求，实现了废液、废气的可循环利用，引起业界的高度赞赏。

The Hai'an Hazardous Waste Disposal Project, as a key demonstration project of Shanghai Electric, requires the simultaneous treatment of four types of waste liquids and one type of exhaust gas to achieve simultaneous combustion of multiple fuels under the premise of safety and stability. Given the complexity of the project, Eacoon technical team has repeatedly communicated, simulated, and confirmed the preliminary design plan: to equip this incineration line with two sets of burners (one for rotary kilns and one for secondary combustion chambers), assisting in the simultaneous combustion of diesel and other fuels. Finally, the project underwent burner installation, debugging, and trial run in November 2018. The ignition ceremony was successfully held in January 2019, achieving stable combustion of multiple fuels and meeting emission requirements. It achieved the recyclable utilization of waste liquid and exhaust gas, which has received high praise from the industry.



回转窑燃烧器



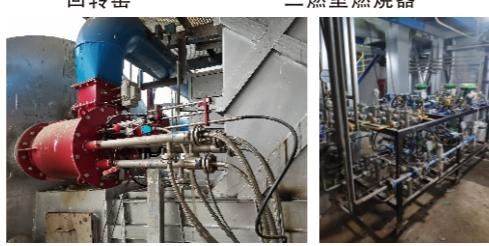
二燃室燃烧器

北京京城环保中再生临沂项目:
Beijing Jingcheng Environmental Protection Recycling Linyi Project:

1

- ◆ 固废处理量: 100t/d
- ◆ 高热值废液处理量: 400kg/h
- ◆ 低热值废液处理量: 100kg/h
- ◆ 燃烧器类型: 天然气+废液
- ◆ 回转窑、二燃室各配置一台组合式燃烧器

- 100t/d Solid waste treatment capacity: 100t/d
- 400kg/h High calorific value waste liquid treatment capacity: 400kg/h
- 100kg/h Low calorific value waste liquid treatment capacity: 100kg/h
- Burner type: natural gas + waste liquid
- Each rotary kiln and secondary combustion chamber is equipped with a combined burner



上海灿州环境乐山项目:
Shanghai Canzhou Environmental Leshan Project:

2

- ◆ 固废处理量: 65t/d
- ◆ 高热值废液处理量: 1000kg/h
- ◆ 燃烧器类型: 柴油+废液
- ◆ 回转窑配置一台组合式燃烧器
- ◆ 二燃室配置两台组合式燃烧器
- 65t/d Solid waste treatment capacity: 65t/d
- 1000kg/h High calorific value waste liquid treatment capacity: 1000kg/h
- Burner type: diesel + waste liquid
- The rotary kiln is equipped with a combined burner
- Two combined burners are equipped in the secondary combustion chamber

光大绿色环保固废处置温岭项目:

Everbright Green Environmental Protection Solid Waste Disposal Wenling Project:

3



回转窑燃烧器

二燃室燃烧器

- ◆ 固废处理量: 100t/d
- ◆ 高热值废液处理量: 1400kg/h
- ◆ 低热值废液处理量: 1000kg/h
- ◆ 直燃废液处理量: 600kg/h
- ◆ 燃烧器类型: 柴油+废液
- ◆ 回转窑配置一台组合式燃烧器
- ◆ 二燃室配置两台组合式燃烧器
- 100t/d Solid waste treatment capacity: 100t/d
- 1400kg/h High calorific value waste liquid treatment capacity: 1400kg/h
- 1000kg/h Low calorific value waste liquid treatment capacity: 1000kg/h
- 600kg/h Direct combustion waste liquid treatment capacity: 600kg/h
- Burner type: diesel + waste liquid
- The rotary kiln is equipped with a combined burner
- Two combined burners are equipped in the secondary combustion chamber

◇ 危险固废处理项目业绩表 PROJECT PERFORMANCE ACHIEVEMENT

序号 No.	项目 Project	处理量 Treatment volume	时间 When	规格型号 Model & Qty
1	上海电气南通国海环保科技有限公司海安危废项目 Shanghai Electric Nantong Guohai Environmental Protection Technology Co., Ltd. Haian Hazardous Waste Project	150t/d	2017年11月 Nov.,2017	DGL-08 *1 DGL-08 *1
2	广州维港危废焚烧九江项目 Guangzhou Weigang Hazardous Waste Incineration Jiujiang Project	100t/d	2018年4月 April,2018	ELG-600 *1 ELG-600 *2
3	广州维港危废焚烧湖北枝江项目 Guangzhou Weigang Hazardous Waste Incineration Project in Zijiang, Hubei Province	100t/d	2018年11月 Nov.,2018	ELG-800 *1 ELG-800 *2
4	佛山绿色工业服务中心工程南海项目 Foshan Green Industry Service Center Project Nanhai Project	危废 Hazardous Waste Treatment	2018年1月 Jan.,2018	ELG-800 *1 ELG-400 *2 ELG-400 *1
5	北京京城环保股份有限公司 Beijing Jingcheng Environmental Protection Co., Ltd	100t/d	2019年8月 Aug.,2019	HGWW-700 *1 HGWW-700 *1
6	首创环境淄博危废项目 Capital Environmental Zibo Hazardous Waste Project	50t/d 20t/d	2019年3月 Mar.,2019	EG-600 *1 EG-300 *2 IB600 *1
7	广州维港环保科技有限公司(杭州A线) Guangzhou Weigang Environmental Protection Technology Co., Ltd. (Hangzhou A Line)	危废 Hazardous Waste Treatment	2019年12月 Dec.,2019	ELG-700 *1 ELG-700 *2
8	广州维港环保科技有限公司(新疆项目) Guangzhou Weigang Environmental Protection Technology Co., Ltd. (Hangzhou A Line)	危废 Hazardous Waste Treatment	2020年1月 Jan.,2020	ELG-500 *2
9	光大绿色环保处置(海门)有限公司 Everbright Green Environmental Protection Solid Waste Disposal (Haimen) Co., Ltd	70t/d	2020年5月 May,2020	HGWW-700 *1 HGW-400 *2
10	光大环保(连云港)废弃物处理有限公司 Everbright Environmental Protection (Lianyungang) Waste Treatment Co., Ltd	100t/d	2020年6月 June,2020	HGW-1000 *1 HGW-500 *2
11	光大环保(黄石)废弃物处理有限公司 Everbright Environmental Protection (Huangshi) Waste Treatment Co., Ltd	100t/d	2020年6月 June,2020	HGW-900 *1 HGW-600 *2
12	光大绿保固废处置(温岭)有限公司 Everbright Green Protection Solid Waste Disposal (Wenling) Co., Ltd	100t/d	2020年7月 July,2020	HLW-800 *1 HGW-400 *2
13	上海灿州环境工程有限公司(乐山项目) Shanghai Canzhou Environmental Engineering Co., Ltd. (Leshan Project)	60t/d	2020年6月 June,2020	HLWWW-200 *1 HLW-400 *2
14	无锡雪浪环境科技股份有限公司(菏泽) Wuxi Xuelang Environmental Technology Co., Ltd. (Heze)	150t/d	2020年7月 July,2020	WG-1000 *1 WG-600 *2
15	上海灿州环境工程有限公司(防城港项目) Shanghai Canzhou Environmental Engineering Co., Ltd. (Fangchenggang Project)	25000吨/年 25000t/y	2020年8月 Aug.,2020	HLGW-600 *1 HLGW-600 *2
16	光大定远危废项目 Everbright Dingyuan Hazardous Waste Project	100t/d	2020年11月 Nov.,2020	回转窑燃烧器*1 二燃室燃烧器*2 Rotary kiln burner*1 Secondary combustion chamber*2
17	上海市机电设计研究院有限公司(豫东) Shanghai Electromechanical Design and Research Institute Co., Ltd. (Yudong)	30000吨/年 30000t/y	2021年4月 April,2021	HLW-1000 *1 HLW-600 *2
18	上海市机电设计研究院有限公司(余姚) Shanghai Electromechanical Design and Research Institute Co., Ltd. (Yuyao)	30000吨/年 30000t/y	2021年4月 April,2021	HGW-1000 *1 HGW-600 *2
19	光大绿色环保固废处置(大庆)项目 Everbright Green Environmental Protection Solid Waste Disposal (Daqing) Project	100t/d	2021年4月 April,2021	HG-800 *1 HG-500 *2
20	广州维港环保科技有限公司(云浮) Guangzhou Weigang Environmental Protection Technology Co., Ltd. (Yunfu)	危废 Hazardous Waste Treatment	2021年5月 May,2021	HLG-500 *1 HLG-500 *2
21	中国瑞林工程技术股份有限公司 China Ruilin Engineering Technology Co., Ltd	危废 Hazardous Waste Treatment	2021年5月 May,2021	HLWW-1000 *1 HLWW-600 *2

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