



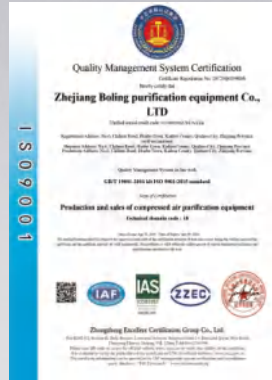
Borin 博菱

浙江博菱净化设备有限公司

ZHEJIANG BOLING PURIFICATION EQUIPMENT CO., LTD

真诚奉献 · 追求卓越

SINCERE DEDICATION AND PURSUIT OF EXCELLENCE



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公司简介 Company Profile

浙江博菱净化设备有限公司是一家集科研、制造、贸易于一体的专业化高科技企业，也是国内较早专业从事空气、压缩空气及空气分离处理技术研发与制造的企业。立足压缩空气净化领域，积极推动行业技术升级，专注于空气除湿、冷却与净化设备的研发生产，为客户提供高品质产品与完善的售前、售后服务。

Zhejiang Boling Purification Equipment Co., Ltd. is a professional high-tech enterprise integrating scientific research, manufacturing and trade, and one of the earliest domestic enterprises specialized in the R&D and manufacturing of air, compressed air and air separation treatment technologies. Focusing on the field of compressed air purification, we actively promote the technological upgrading of the industry, concentrate on the R&D and production of air dehumidification, cooling and purification equipment, and provide customers with high-quality products and comprehensive pre-sales and after-sales services.

主营产品涵盖冷冻式干燥机、吸附式干燥机、组合式干燥机、压缩热再生吸附式干燥机、鼓风外加热式吸附式干燥机、无动力节能干燥机、混动式无动力节能干燥机、自洁式空气过滤器、压缩空气低温预冷机组、工业冷水机组、精密过滤器、油水分离设备、后部冷却器等多个系列，并可根据客户需求定制风冷、水冷、标准、无氟、高温、仪表、单片机、可编程、工控机、变频控制、高压、防爆等多种型式设备。产品露点范围 $-23^{\circ}\text{C}\sim-70^{\circ}\text{C}$ ，处理量 $1\sim 800\text{m}^3/\text{min}$ ，出口含油量 $10\text{PPM}\sim 0.003\text{PPM}$ ，出口含尘粒径 $3\sim 0.01\mu\text{m}$ ，各项性能指标均处于行业领先水平。

Our main products cover refrigerated air dryers, desiccant air dryers, combined air dryers, heat of compression desiccant dryers, blower purge desiccant dryers, zero air loss energy-saving dryers, hybrid zero air loss energy-saving dryers, self-cleaning air filters, compressed air pre-cooling units, industrial chillers, precision filters, oil-water separators, after-coolers and many other series. We can also customize air-cooled, water-cooled, standard, fluorine-free, high-temperature, instrument, single-chip, programmable, industrial computer, frequency conversion control, high-pressure, explosion-proof and other types of equipment according to customer needs. The dew point range of our products is $-23^{\circ}\text{C}\sim-70^{\circ}\text{C}$, the processing capacity is $1\sim 800\text{m}^3/\text{min}$, the outlet oil content is $10\text{PPM}\sim 0.003\text{PPM}$, and the outlet dust particle size is $3\sim 0.01\mu\text{m}$, with all performance indicators leading the industry.

依托强大的研发设计能力，在吸收国内外先进技术的基础上结合国内实际工况持续优化，所生产的净化设备已成为各类有油、无油空气压缩机理想的吸气过滤与后处理配套设备。产品广泛应用于电力、造船、航天、电子、冶金、机械、汽车制造、石油、化工、纺织、轻工、造纸、橡胶、仪表、食品、空分、卷烟、医药、生物、日化、激光等众多行业，覆盖全国三十多个省市，并成功应用于多项国家重点工程，同时成套出口至巴西、澳大利亚、伊朗、印度、苏丹、印尼、越南、埃及、沙特等东南亚、中东、中亚及非洲地区。

Relying on strong R&D and design capabilities, we have absorbed advanced technologies at home and abroad and combined with actual domestic working conditions for continuous optimization. The purification equipment we produce has become an ideal suction filtration and post-treatment supporting equipment for various oil-lubricated and oil-free air compressors. Our products are widely used in electric power, shipbuilding, aerospace, electronics, metallurgy, machinery, automobile manufacturing, petroleum, chemical industry, textile, light industry, papermaking, rubber, instrumentation, food, air separation, tobacco, medicine, biology, daily chemicals, laser and many other industries, covering more than 30 provinces and cities across the country, and have been successfully applied to a number of national key projects. Meanwhile, they are exported as complete sets to Brazil, Australia, Iran, India, Sudan, Indonesia, Vietnam, Egypt, Saudi Arabia and other Southeast Asia, Middle East, Central Asia and African regions.

为进一步提升产能与制造标准，新建 20 亩现代化生产基地已全面建成投产，生产规模、制造能力与硬件实力实现跨越式升级，为建设规模化、标准化、现代化的净化设备制造基地奠定坚实基础。

To further improve production capacity and manufacturing standards, a 20-mu modern production base has been fully completed and put into operation, achieving a leapfrog upgrade in production scale, manufacturing capacity and hardware strength, laying a solid foundation for building a large-scale, standardized and modern purification equipment manufacturing base.

在北京、西安、沈阳、东营、临沂、上海、成都、广州、杭州、武汉、乌鲁木齐、天津、内蒙古、甘肃、南京、越南、马来西亚、印度尼西亚等地均设有销售服务中心，可快速响应市场需求，为用户提供专业技术咨询、个性化方案设计、商务洽谈与高效售后保障。完善的质量保证体系与覆盖国内外的服务网络，持续保障产品的高性能与高可靠性。

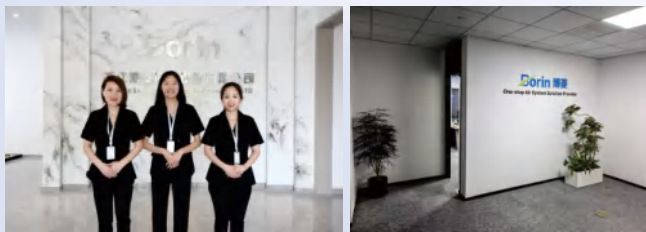
We have set up sales and service centers in Beijing, Xi'an, Shenyang, Dongying, Linyi, Shanghai, Chengdu, Guangzhou, Hangzhou, Wuhan, Urumqi, Tianjin, Inner Mongolia, Gansu, Nanjing, Vietnam, Malaysia, Indonesia and other places, which can quickly respond to market demand, and provide users with professional technical consultation, personalized scheme design, business negotiation and efficient after-sales guarantee. A sound quality assurance system and a service network covering domestic and overseas markets continuously ensure the high performance and high reliability of our products.

秉承“真诚奉献，追求卓越”的企业精神，以先进设计、严苛品质、高效服务坚持“技术兴业、质量兴业、服务兴业”的发展理念，致力成为国内一流、国际知名的压缩空气净化设备专业制造企业。

Adhering to the corporate spirit of "Sincere Dedication, Pursuit of Excellence", and the development philosophy of "Technology-based Industry, Quality-based Industry, Service-based Industry" with advanced design, strict quality and efficient service, we strive to become a first-class domestic and internationally renowned professional manufacturer of compressed air purification equipment.

企业文化 Corporate Culture

- 质量是企业的生命,安全是职工的生命。
Quality is the life of the enterprise, and safety is the life of employees.
- 没有十全十美的产品,但有百分之百的服务。
There are no perfect products, but there are 100% perfect services.
- 企业只有一项真的资源----人,管理就是充分开发人力资源,以做好工作。
The only real asset of an enterprise is people. Management is to fully develop human resources to do a good job.
- 世界上最无价的东西是人心,要赢得别人的心,只有拿自己的心去交换。
The most priceless thing in the world is people's hearts. To win others' hearts, you can only exchange your own hearts.



企业宗旨 Corporate Tenet

诚信经营、海纳百川、以人为本、追求卓越、这个是博菱公司长期以来秉持的经营理念;对待客户,我们始终坚持“完美、快捷、双赢”的宗旨。

Integrity Management, All Rivers Enter the Sea, People-oriented, Pursuit of Excellence. This is the long-term business philosophy upheld by Borling Company. For customers, we always adhere to the tenet of "Perfection, Efficiency, Win-win".

风冷型冷冻式压缩空气干燥机 Air-cooled refrigerated compressed air dryer

风冷型冷冻式干燥机的工作原理 Working principle of air-cooled refrigerated dryer

压缩空气中水蒸气的量是由压缩空气的温度决定的,在保持压缩空气压力基本不变的情况下,降低压缩空气的温度可减少压缩空气中的水蒸气含量,而多余的水蒸气会凝结成液体。冷冻式干燥机就是根据水的饱和蒸气压力和温度之间的对应关系,利用制冷装置使压缩空气冷却到一定的露点温度,析出所含的水分,通过汽水分离器与自动排水器将水排出,从而使压缩空气得到干燥。

The amount of water vapor in compressed air is determined by its temperature. While maintaining a relatively constant compressed air pressure, lowering the temperature reduces the water vapor content, causing excess water vapor to condense into liquid. Refrigerated dryers work by utilizing the relationship between the saturated vapor pressure and temperature of water. A refrigeration unit cools the compressed air to a specific dew point temperature, causing the moisture to precipitate out. This moisture is then discharged through a vapor-water separator and an automatic drain, thus drying the compressed air.

风冷型冷冻式干燥机的特点 Features of air-cooled refrigerated dryers

1. 保证设备在40°C的环境温度下正常运行;
1. Ensures normal operation of the equipment at an ambient temperature of 40°C;
2. 利用自然空气做制冷系统的冷却介质,无需一套整体供水和水回收、冷却等设施,方便、经济;
2. Utilizing natural air as the cooling medium eliminates the need for a complete water supply, water recycling, and cooling system, making it convenient and economical.
3. 换热器采用逆流设计,换热效率高,体积小;
3. The heat exchanger employs a counter-current design, resulting in high heat exchange efficiency and a compact size.
4. 汽水分离器采用了三级分离方式:直接碰撞式分离+低速离心分离+不锈钢丝网除雾分离器,将99.9%的液态水分从被冷却的压缩空气中分离出来,防止水分的二次蒸发,保证成品气的低露点品质;
4. The steam-water separator utilizes a three-stage separation method: direct collision separation + low-speed centrifugal separation + stainless steel wire mesh demister separator, separating 99.9% of the liquid water from the cooled compressed air, preventing secondary evaporation and ensuring the low dew point quality of the finished gas.
5. 制冷压缩机采用法国百福马(PERFORMER)、德国比泽尔(BITZER)、谷轮(COPELAND)、法国美优乐(MANEUROP)、台湾擎宇(CHYNTEC)等公司全封闭或半封闭制冷压缩机,运转稳定、噪声低、COP高、性能可靠、省电寿命长;
5. The refrigeration compressor uses French PERFORMER and German Bizer components. The compressors are fully enclosed or semi-enclosed from companies such as BITZER, COPELAND, MANEUROP (France), and CHYNTEC (Taiwan), ensuring stable operation, low noise, high COP, reliable performance, energy saving, and long lifespan.
6. 制冷控制原件均采用世界上最先进的丹麦丹佛斯(DANFOSS)、美国艾默生(EMERSON)、斯波兰(SPORLAN)制冷原件;
6. Refrigeration control components utilize the world's most advanced refrigeration components from Danfoss (Denmark), Emerson (USA), and Sporlan (USA).
7. 特殊机型可采用PLC控制,运行参数实时显示,可远程控制。
7. Special models can be controlled by PLC, with real-time display of operating parameters and remote control capability.

工况条件与技术指标 Operating conditions and technical specifications

进气温度	Intake temperature	常温型<45°C Normal temperature type <45°C	高温型<80°C temperature type <85°C
进气压力	Intake pressure	0.6-1.0Mpa	
压力损耗	Pressure loss	≤进气压力的3%	≤ 3% of intake pressure
压力露点	Pressure dew point	2-10°C	
冷却方式	Cooling method	风冷 Air cooling	
环境温度	Ambient temperature	<38°C	
制冷剂	Refrigerant	R22	



风冷型冷冻式干燥机

Air-cooled refrigerated dryer

型号 model	处理气量 Processing gas volume (m ³ /min)	电压 Voltage (V)	功率 power (kw)	空气接管口径 Air inlet diameter	设备重量 Equipment weight (KG)	设备尺寸 Device dimensions (mm)
BLAD-1.6	1.6	220	0.43	G1	44	600*480*740
BLAD-2.6	2.6	220	0.55	G1	48	720*480*810
BLAD-3.6	3.6	220	0.91	G1(1/2)	60	850*500*810
BLAD-6.8	6.8	220	1.13	G1(1/2)	73	900*550*880
BLAD-8	8.5	220	1.75	G2	96	1030*630*950
BLAD-10	10	220	2.4	G2	123	1170*660*1040
BLAD-13	13	220	2.55	G2	123	1170*660*1040
BLAD-15	15	380	2.9	DN65	215	1250*700*1310
BLAD-20	20	380	3.4	DN80	248	1460*780*1370
BLAD-25	25	380	4.6	DN80	248	1460*780*1370
BLAD-30	32	380	5.7	DN80	386	1650*850*1580
BLAD-40	43	380	8.1	DN100	610	1800*900*1620

我司保留在不事先通知的情况下进行技术更改的权利, 错误和遗漏除外。

Our company reserves the right to make technical changes without prior notice, except for errors and omissions.

■ 常温风冷型冷冻式干燥机技术参数表

Technical parameters of ambient temperature Air-cooled refrigerated dryer

型号 model	处理气量 Processing gas volume (m ³ /min)	电压 Voltage (V)	制冷剂 refrigerant	空气接管口径 Air inlet diameter	设备重量 Equipment weight (KG)	长 long (mm)	宽 Width (mm)	高 high (mm)	功率 KW
BLAD-1.6F	1.6	220	R22	G1"	51	630	400	735	0.6
BLAD-2.6F	2.6	220	R22	G1"	60	680	420	755	0.9
BLAD-3.6F	3.6	220	R22	G1"	88	840	450	885	1.05
BLAD-6.8F	6.8	220	R22	G1(1/2)"	110	950	500	935	1.45
BLAD-8.5F	8.5	220	R22	G2"	150	1050	580	1035	1.8
BLAD-10F	10	380	R22	G2"	223	1200	650	1210	2.55
BLAD-13F	13	380	R22	G2"	223	1200	650	1210	2.55
BLAD-15F	16	380	R22	DN65	268	1300	700	1260	3.4
BLAD-20F	22	380	R22	DN65	366	1500	750	1460	4.3
BLAD-25F	26	380	R22	DN80	396	1500	750	1460	4.9
BLAD-30F	32	380	R22	DN80	517	1700	850	1470	6.5
BLAD-40F	43.5	380	R22	DN100	662	1950	900	1670	8.3
BLAD-50F	53	380	R22	DN100	890	2100	1100	1820	10.5
BLAD-60F	67	380	R22	DN125	1120	2200	1100	1820	13
BLAD-80F	90	380	R410A	DN150	1300	2500	1550	1950	17.5
BLAD-100F	100	380	R410A	DN150	1300	2600	1600	2120	21.5

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高温风冷型冷冻式干燥机技术参数表

Technical Parameter Table of High Temperature Air-Cooled Refrigerated Dryer

型号 model	处理气量 Processing gas volume (m ³ /min)	电压 Voltage (V)	制冷剂 refrigerant	空气接管口径 Air inlet diameter	设备重量 Equipment weight (KG)	长 long (mm)	宽 Width (mm)	高 high (mm)	功率 KW
BLCD-1.6F	1.6	220	R22	G1"	51	630	400	735	0.6
BLCD-2.6F	2.6	220	R22	G1"	60	680	420	755	0.9
BLCD-3.6F	3.6	220	R22	G1"	88	840	450	885	1.05
BLCD-6.8F	6.8	220	R22	G1(1/2)"	110	950	500	935	1.45
BLCD-8.5F	8.5	220	R22	G2"	150	1050	580	1035	1.8
BLCD-10F	10	380	R22	G2"	250	1200	690	1280	2.7
BLCD-13F	13	380	R22	G2"	250	1200	690	1280	2.7
BLCD-15F	16	380	R22	DN65	300	1300	700	1440	3.6
BLCD-20F	22	380	R22	DN65	406	1500	750	1560	4.6
BLCD-25F	26	380	R22	DN80	420	1500	750	1560	5.2
BLCD-30F	32	380	R22	DN80	567	1700	850	1570	6.9
BLCD-40F	43.5	380	R22	DN100	732	1950	950	1800	8.8
BLCD-50F	53	380	R22	DN100	1040	2100	1200	1920	11
BLCD-60F	67	380	R22	DN125	1300	2200	1200	1920	14
BLCD-80F	90	380	R410A	DN150	1500	2500	1550	2160	19
BLCD-100F	110	380	R410A	DN150	1520	2600	1600	2370	23

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表一: 压缩空气进气温度, 进气压力修正系数 (C1) Table 1: Compressed air inlet temperature, inlet pressure correction factor (C1)

进气压力 (Mpa) Intake pressure (Mpa)

进气温度 (°C) Inlet air temperature	0.4	0.5	0.6	0.7	0.8	0.9	1.0
30	0.88	1.05	1.23	1.40	1.46	1.50	1.54
35	0.77	0.92	1.08	1.23	1.28	1.32	1.35
40	0.69	0.83	0.97	1.10	1.14	1.18	1.21
45	0.63	0.75	0.88	1.0	1.04	1.07	1.1
50	0.54	0.64	0.73	0.85	0.88	0.91	0.94

表二: 环境温度修正系数 (C2) (只适用于风冷型) Table 2: Ambient Temperature Correction Factor (C2) (Applicable only to air-cooled models)

露点温度 (°C) Dew point temperature	20	25	30	35	38	40	45	50
修正系数 Correction coefficient	1.16	1.12	1.08	1.05	1.00	0.98	0.80	0.52

表三: 压力露点修正系数 (C3) Table 3: Pressure Dew Point Correction Factor (C3)

露点温度 (°C) Dew point temperature	3	5	7	10
修正系数 Correction coefficient	0.66	0.78	0.91	1.0

不锈钢冷冻式压缩空气干燥机 Stainless steel Refrigerated compressed air dryer

产品介绍 Product Introduction

不锈钢冷冻式压缩空气干燥机是博菱公司在标准型冷冻式干燥机基础上,针对特殊工况需求升级的高端产品。有效解决传统铜铝换热器在腐蚀性环境下易腐蚀、易结垢的问题,大幅延长设备使用寿命,提升干燥效果。

The stainless steel refrigerated compressed air dryer is a high-end product from Boling Company, upgraded from their standard refrigerated dryer to meet specific operating conditions. It effectively solves the problems of corrosion and scaling of traditional copper-aluminum heat exchangers in corrosive environments, significantly extending equipment lifespan and improving drying efficiency.

设备过流部分采用优质不锈钢材料,具有优异的耐腐蚀性能,特别适用于沿海地区、化工行业、矿山等潮湿或略带腐蚀性的压缩空气工况。

The flow-through parts are made of high-quality stainless steel, possessing excellent corrosion resistance, making it particularly suitable for humid or slightly corrosive compressed air conditions in coastal areas, chemical industries, and mines.



工作原理 Working Principle

不锈钢冷冻式压缩空气干燥机的工作原理与标准冷冻式干燥机相同,通过制冷系统将压缩空气冷却至露点温度,析出水分:

The working principle of a stainless steel refrigerated compressed air dryer is the same as that of a standard refrigerated dryer. The compressed air is cooled to its dew point temperature via a refrigeration system, causing moisture to precipitate out.

预冷阶段:高温压缩空气进入空气-空气热交换器,与干燥后的低温空气进行热交换,初步降温。

Pre-cooling stage: High-temperature compressed air enters the air-to-air heat exchanger and exchanges heat with the dried, low-temperature air, resulting in initial cooling.

深度制冷:压缩空气进入不锈钢蒸发器,被冷却至2~10°C的露点温度,水蒸气凝结成液态水。

Deep cooling: Compressed air enters the stainless steel evaporator and is cooled to a dew point temperature of 2~10°C, where water vapor condenses into liquid water.

气液分离:凝结水通过不锈钢气水分离器高效分离排出。

Gas-liquid separation: Condensate is efficiently separated and discharged through a stainless steel gas-liquid separator.

再热阶段:干燥空气返回热交换器升温,防止下游管道结露。

Reheating stage: Dry air returns to the heat exchanger to raise its temperature, preventing condensation on downstream pipes.

不锈钢换热器的应用,使设备在潮湿、腐蚀性环境下仍能保持高效的换热性能和稳定运行。

The use of stainless steel heat exchangers allows the equipment to maintain high heat exchange performance and stable operation even in humid and corrosive environments.

工况条件与技术指标 Operating conditions and technical specifications

进气温度 Intake Air Temperature	≤45°C (标准型) ≤ 45 °C (standard type)	≤80°C (高温型) ≤ 80 °C (high temperature type)
工作压力 Work Pressure	0.6~1.0MPa	
环境温度 Ambient Temperature	≤45°C	
压力露点 Pressure Dew Point	2~10°C	
冷却方式 Cooling Method	风冷/水冷 Air cooling/water cooling	
与压缩空气接触部件材质 Material Of Parts In Contact With Compressed Air	不锈钢 Stainless steel	

■ 常温风冷型不锈钢冷冻式干燥机技术参数表

Technical parameters of ambient temperature air-cooled stainless steel refrigerated dryer

型号 model	处理气量 Processing gas volume (m ³ /min)	电压 Voltage (V)	制冷剂 refrigerant	空气接管口径 Air inlet diameter	设备重量 Equipment weight (KG)	长 long (mm)	宽 Width (mm)	高 high (mm)	功率 KW
BLAB-1.6F	1.6	220	R22	G1"	51	630	400	735	0.6
BLAB-2.6F	2.6	220	R22	G1"	60	680	420	755	0.9
BLAB-3.6F	3.6	220	R22	G1"	88	840	450	885	1.05
BLAB-6.8F	6.8	220	R22	G1(1/2)"	110	950	500	935	1.45
BLAB-8.5F	8.5	220	R22	G2"	150	1050	580	1035	1.8
BLAB-10F	10	380	R22	G2"	223	1200	650	1210	2.55
BLAB-13F	13	380	R22	G2"	223	1200	650	1210	2.55
BLAB-15F	16	380	R22	DN65	268	1300	700	1260	3.4
BLAB-20F	22	380	R22	DN65	366	1500	750	1460	4.3
BLAB-25F	26	380	R22	DN80	396	1500	750	1460	4.9
BLAB-30F	32	380	R22	DN80	517	1700	850	1470	6.5
BLAB-40F	43.5	380	R22	DN100	662	1950	900	1670	8.3
BLAB-50F	53	380	R22	DN100	890	2100	1100	1820	10.5
BLAB-60F	67	380	R22	DN125	1120	2200	1100	1820	13
BLAB-80F	90	380	R410A	DN150	1300	2500	1550	1950	17.5
BLAB-100F	100	380	R410A	DN150	1300	2600	1600	2120	21.5

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防爆型冷冻式压缩空气干燥机 Explosion-proof Refrigerated compressed air dryer

产品介绍 Product Introduction

防爆型冷冻式压缩空气干燥机是博菱公司为石油、化工、制药、涂料、喷涂等存在易燃易爆隐患的行业专门设计的产品。该机型采用电器部分防爆设计，核心电气元件采用防爆型或本质安全型设计，而制冷系统管路、换热器等非电气部件保持标准设计，在保证优异干燥性能的同时，具备可靠的防爆安全保障，特别适用于IIB、IIC类爆炸性气体环境。

The explosion-proof refrigerated compressed air dryer is a product specially designed by Boling for industries with flammable and explosive hazards, such as petroleum, chemical, pharmaceutical, coating, and spraying. This model features an explosion-proof electrical component, with core electrical components using flameproof or intrinsically safe designs, while non-electrical components such as the refrigeration system piping and heat exchangers maintain standard designs. This ensures excellent drying performance while providing reliable explosion-proof safety, making it particularly suitable for IIB and IIC class explosive gas environments.

工作原理 Working Principle

防爆型冷冻式压缩空气干燥机的工作原理与标准冷冻式干燥机相同：

The working principle of the explosion-proof refrigerated compressed air dryer is the same as that of the standard refrigerated dryer:

预冷阶段：高温压缩空气进入空气-空气热交换器预冷

Pre-cooling stage: High-temperature compressed air enters the air-to-air heat exchanger for pre-cooling.

深度制冷：通过制冷系统冷却至2~10°C露点温度

Deep cooling: Cooling to a dew point temperature of 2~10°C via a refrigeration system.

气液分离：凝结水高效分离排出

Gas-liquid separation: Efficient separation and discharge of condensate

再热阶段：干燥空气升温后输出

Reheating stage: Dry air is heated and then output.

防爆设计重点在电气控制系统：控制箱、接线盒、传感器、电机等电器部分采用防爆或本安设计，防止电气火花引燃危险气体。

The focus of explosion-proof design is on the electrical control system: electrical components such as control boxes, junction boxes, sensors, and motors adopt explosion-proof or intrinsically safe designs to prevent electrical sparks from igniting dangerous gases.

产品特点 Product Features

1、电器部分防爆设计 Explosion-proof design for electrical components

防爆型控制箱：核心电气控制元件置于防爆外壳内，防止内部电弧或高温引燃外部危险气体

Explosion-proof control box: The core electrical control components are housed within an explosion-proof enclosure to prevent internal electric arcs or high temperatures from igniting external hazardous gases.

本质安全型仪表：温度传感器、压力开关等采用Ex ia本安设计
Intrinsically safe instruments: Temperature sensors, pressure switches, etc., adopt Ex ia intrinsically safe design.

防爆接线盒：电气连接处采用防爆型接线盒

Explosion-proof junction box: Explosion-proof junction boxes are used at electrical connections.

防爆电机：电机采用防爆型设计，防护等级Ex d

Explosion-proof motor: The motor adopts an explosion-proof design with a protection level of Ex d.

2、适用危险区域 Applicable hazardous areas

适用于IIB、IIC类爆炸性气体环境

Suitable for Class IIB and IIC explosive gas atmospheres

适用于Zone 1、Zone 2危险区域

Applicable to Zone 1 and Zone 2 hazardous areas

适用于存在可燃性气体或蒸汽的工业场合

Suitable for industrial applications where flammable gases or vapors are present.

3、经济实用的解决方案 Economical and practical solutions

非电气部件保持标准设计，结构简单可靠

Non-electrical components maintain standard design, with a simple and reliable structure.

维护保养方便，维护成本低

Easy to maintain and low maintenance cost

适用于预算有限但有防爆需求的客户

Suitable for customers with limited budgets but explosion-proof requirements.

4、干燥性能稳定 Stable drying performance

压力露点稳定：2~10°C

Stable pressure dew point: 2~10°C

制冷系统优质高效

High-quality and efficient refrigeration system

自动排水，运行稳定

Automatic drainage, stable operation

5、适用行业 Applicable industries

石油、化工、制药、农药、涂料、喷涂、橡胶、塑料、食品加工（部分工况）

Petroleum, chemical, pharmaceutical, pesticide, coating, spraying, rubber, plastics, food processing (partial operating conditions)



防爆认证说明

Explosion-proof certification instructions

防爆类型 Explosion-proof type	电器部分防爆 (防爆型+本安型) Explosion-proof electrical components (flameproof + intrinsically safe)
适用区域 Applicable Areas	Zone 1、Zone 2
气体组别 Gas Group	IIB、IIC
温度组别 Temperature group	T4~T6

常温风冷型防爆冷冻式干燥机技术参数表

Technical parameters of ambient temperature air-cooled explosion-proof refrigerated dryer

型号 model	处理气量 Processing gas volume (m ³ /min)	电压 Voltage (V)	制冷剂 refrigerant	空气接管口径 Air inlet diameter	设备重量 Equipment weight (KG)	长 long (mm)	宽 Width (mm)	高 high (mm)	功率 KW
BLFB-1.6F	1.6	220	R22	G1"	70	850	630	735	0.85
BLFB-2.6F	2.6	220	R22	G1"	110	850	630	735	1.1
BLFB-3.6F	3.6	220	R22	G1"	130	1060	700	885	1.25
BLFB-6.8F	6.8	220	R22	G1(1/2)"	160	1170	750	935	1.75
BLFB-8.5F	8.5	220	R22	G2"	200	1270	810	1035	2.2
BLFB-10F	10	380	R22	G2"	250	1420	880	1210	3.2
BLFB-13F	13	380	R22	G2"	300	1420	880	1210	3.2
BLFB-15F	16	380	R22	DN65	320	1520	920	1260	3.9
BLFB-20F	22	380	R22	DN65	420	1720	980	1460	4.8
BLFB-25F	26	380	R22	DN80	550	1720	980	1460	5.4
BLFB-30F	32	380	R22	DN80	650	1920	1030	1470	7.5
BLFB-40F	43.5	380	R22	DN100	750	2170	1130	1670	11.3
BLFB-50F	53	380	R22	DN100	890	2320	1320	1820	14.1
BLFB-60F	67	380	R22	DN125	1020	2420	1320	1820	17.5
BLFB-80F	90	380	R410A	DN150	1300	2720	1780	1950	20
BLFB-100F	100	380	R410A	DN150	1300	2820	1830	2120	25

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水冷型冷冻式压缩空气干燥机

Water-cooled refrigerated compressed air dryer

水冷型冷冻式干燥机的工作原理

Working principle of water-cooled refrigerated dryer

压缩空气中水蒸气的量是由压缩空气的温度决定的;在保持压缩空气压力基本不变的情况下,降低压缩空气的温度可减少压缩空气中的水蒸气含量,而多余的水蒸气会凝结成液体。冷冻式干燥机就是根据水的饱和蒸气压力和温度之间的对应关系,利用制冷装置使压缩空气冷却到一定的露点温度,析出所含的水分,通过汽水分离器与电动排水器将水排出,从而使压缩空气得到干燥。

The amount of water vapor in compressed air is determined by its temperature. While maintaining a relatively constant compressed air pressure, lowering the temperature reduces the water vapor content, causing excess water vapor to condense into liquid. Refrigerated dryers work based on the relationship between water's saturated vapor pressure and temperature. A refrigeration unit cools the compressed air to a specific dew point temperature, causing the moisture to precipitate. This moisture is then discharged through a steam-water separator and an electric drain, thus drying the compressed air.



水冷型冷冻式干燥机的特点

Features of water-cooled refrigerated dryers

利用工业循环水作制冷系统的冷却介质,适合高温环境使用;

Using industrial circulating water as the cooling medium in the refrigeration system makes it suitable for high-temperature environments.

换热器采用逆流设计,换热效率高,体积小;

The heat exchanger adopts a counter-current design, which results in high heat exchange efficiency and small size;

汽水分离器采用了三级分离方式:直接碰撞式分离+低速离心分离+不锈钢丝网除雾分离器,将99.9%的液态水分从被冷却的压缩空气中分离出来,防止水分的二次蒸发,保证成品气的低露点品质;

The steam-water separator employs a three-stage separation method: direct collision separation + low-speed centrifugal separation + stainless steel wire mesh demister separator, which separates 99.9% of the liquid water from the cooled compressed air, preventing secondary evaporation of water and ensuring the low dew point quality of the finished gas;

制冷压缩机采用国际知名品牌全封闭或半封闭制冷压缩机,运转稳定、噪声低、COP高、性能可靠、省电寿命长;

The refrigeration compressor uses a fully enclosed or semi-enclosed refrigeration compressor from an internationally renowned brand, which is stable in operation, low in noise, high in COP, reliable in performance, energy-saving and long in life.

制冷控制元件均采用世界上最先进的制冷元件;

The refrigeration control components all use the world's most advanced refrigeration components;

特殊机型可采用PLC控制,运行参数实时显示,可远程控制。

Special models can be controlled by PLC, with real-time display of operating parameters and remote control capability.

工况条件与技术指标

Operating conditions and technical specifications

进气温度	Intake temperature	常温型 $\leq 45^{\circ}\text{C}$ Normal temperature type $\leq 45^{\circ}\text{C}$	高温型 $\leq 85^{\circ}\text{C}$ High temperature type $\leq 85^{\circ}\text{C}$
进气压力	Intake pressure	0.4-1.0Mpa	
压力损耗	Pressure loss	\leq 进气压力的3%	$\leq 3\%$ of intake pressure
压力露点	Pressure dew point	2-10 $^{\circ}\text{C}$	
冷却方式	Cooling method	水冷 Water cooling	
冷却水温	Cooling water temperature	$\leq 32^{\circ}\text{C}$	
冷却水压力	Cooling water pressure	0.2-0.4Mpa	

常温水冷型冷冻式干燥机型号规格与性能参数

Models, specifications, and performance parameters of ambient temperature water-cooled refrigerated dryers

型号 model	处理气量 Processing gas volume (m ³ /min)	电压 Voltage (V)	冷却水循环量 Cooling water circulation rate (m ³ /h)	空气接管口径 Air inlet diameter	冷却水管口径 Cooling water pipe diameter	长 long (mm)	宽 Width (mm)	高 high (mm)	功率 KW
BLAD-20W	20	380	3.6	DN80	R1(1/2)"	1500	680	1460	3.75
BLAD-25W	25	380	4.6	DN80	R1(1/2)"	1500	730	1460	4.5
BLAD-30W	30	380	5.6	DN80	R1(1/2)"	1700	750	1470	6
BLAD-40W	40	380	7.2	DN100	R1(1/2)"	1950	850	1670	7.5
BLAD-50W	50	380	9.2	DN100	R1(1/2)"	2100	1000	1720	9
BLAD-60W	60	380	10.8	DN125	R1(1/2)"	2200	1050	1820	11.5
BLAD-80W	80	380	12.4	DN150	R2"	2500	1250	2020	15
BLAD-100W	100	380	14.6	DN150	R2"	2400	1250	1970	18
BLAD-120W	130	380	17.5	DN150	R2"	2450	1300	2000	19
BLAD-150W	160	380	24	DN200	R2"	2950	1500	2150	22.5
BLAD-200W	210	380	30	DN200	DN65	3450	1750	2300	30
BLAD-250W	260	380	36	DN250	DN65	3800	1900	2625	38
BLAD-300W	310	380	43	DN300	DN80	3950	2000	2814	45
BLAD-400W	410	380	50	DN350	DN100	4200	2200	2900	60
BLAD-500W	530	380	65	DN400	DN125	4500	2400	3010	75
BLAD-600W	630	380	75	DN400	DN125	5200	2800	3350	90

100立方开始不带机箱 Starting from 100 cubic meters, no chassis included.

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■ 高温水冷型冷冻式干燥机技术参数表

Technical Parameter Table of High Temperature Water-Cooled Refrigerated Dryer

型号 model	处理气量 Processing gas volume (m ³ /min)	电压 Voltage (V)	冷却水循环量 Cooling water circulation rate (m ³ /h)	空气接管口径 Air inlet diameter	冷却水管口径 Cooling water pipe diameter	长 long (mm)	宽 Width (mm)	高 high (mm)	功率 KW
BLCD-20W	20	380	7.2	DN80	R1(1/2)"	1500	820	1460	3.75
BLCD-25W	25	380	9.2	DN80	R1(1/2)"	1500	820	1460	4.5
BLCD-30W	30	380	11.5	DN80	R1(1/2)"	1700	920	1470	6
BLCD-40W	40	380	15	DN100	R1(1/2)"	1950	980	1570	7.5
BLCD-50W	50	380	20	DN100	R1(1/2)"	2100	1150	1720	9
BLCD-60W	60	380	24	DN125	R1(1/2)"	2200	1150	1820	11.5
BLCD-80W	80	380	29	DN150	R2"	2500	1450	2020	15
BLCD-100W	100	380	33	DN150	R2"	2400	1650	1970	18
BLCD-120W	120	380	40	DN150	R2"	2450	1700	2000	19
BLCD-150W	160	380	52	DN200	R2"	2950	1980	2150	22.5
BLCD-200W	210	380	60	DN200	DN65	3450	2250	2300	30
BLCD-250W	260	380	74	DN250	DN65	3800	2400	2625	38
BLCD-300W	310	380	85	DN300	DN80	3950	2680	2814	45
BLCD-400W	410	380	110	DN350	DN100	4200	2900	2900	60
BLCD-500W	530	380	135	DN400	DN125	4500	2400	3010	75
BLCD-600W	630	380	150	DN400	DN125	5200	2800	3350	90

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表一：压缩空气进气温度, 进气压力修正系数 (C1)

Table 1: Compressed air inlet temperature and inlet pressure correction factor (C1)

进气温度 (°C) Inlet air temperature	进气压力 (Mpa) Intake pressure (Mpa)						
	0.4	0.5	0.6	0.7	0.8	0.9	1.0
30	0.88	0.64	1.23	1.40	1.46	1.50	1.54
35	0.77	0.75	1.08	1.23	1.28	1.32	1.35
40	0.69	0.83	0.97	1.10	1.14	1.18	1.21
45	0.63	0.75	0.88	1.0	1.04	1.07	1.1
50	0.54	0.64	0.73	0.85	0.88	0.91	0.94

表二：压力露点修正系数 (C2) Table 2: Pressure Dew Point Correction Factor (C2)

露点温度 (°C) Dew point temperature	3	5	7	10
修正系数 Correction coefficient	0.66	0.78	0.91	1.0

板翅式压缩空气干燥机

Plate-fin compressed air dryer

板翅式冷干机工作原理

Working principle of plate-fin refrigerated dryer

板翅式冷干机依靠制冷循环提供冷量，以高效紧凑的板翅式换热器作为核心换热部件，高温湿热的压缩空气先在换热器内与干燥后的低温洁净空气逆流换热回收冷量、初步降温，随后进入换热通道与低温冷媒充分换热，被冷却至设定压力露点温度，使空气中的水蒸气凝结成液态水，再通过气水分离结构将冷凝水分离排出，干燥后的冷空气再度逆流预热进气后送出，全程高效完成压缩空气的降温、除湿、干燥处理，保障输出干燥洁净的压缩空气。

The plate-fin refrigerated air dryer relies on a refrigeration cycle to provide cooling capacity. It uses a high-efficiency and compact plate-fin heat exchanger as the core heat exchange component. The high-temperature and humid compressed air first exchanges heat with the dried low-temperature clean air in the heat exchanger in a countercurrent manner to recover the cooling capacity and achieve preliminary cooling. Then, it enters the heat exchange channel to fully exchange heat with the low-temperature refrigerant and is cooled to the set pressure dew point temperature, causing the water vapor in the air to condense into liquid water. The condensate is then separated and discharged through the gas-water separation structure. The dried cold air is then preheated again in a countercurrent manner before being sent out. The entire process efficiently completes the cooling, dehumidification, and drying of compressed air, ensuring the output of dry and clean compressed air.



板翅式冷干机特点

Features of plate-fin refrigerated dryers

1. 换热效率高 High heat exchange efficiency

采用铝合金板翅式换热器，换热面积大、冷热交换充分，冷量利用率高，干燥效果稳定。

The aluminum alloy plate-fin heat exchanger has a large heat exchange area, provides thorough heat exchange, high cooling capacity utilization, and stable drying effect.

2. 结构紧凑、体积小 Compact structure and small size

集成化设计，整机外形小巧，占地面积小，适合空间有限的安装场景。

With its integrated design, the unit is compact and occupies little space, making it suitable for installation scenarios with limited space.

3. 气流压降小 Small airflow pressure drop

流道设计合理，空气通过阻力低，有效减少空压机能耗损失。

The flow channel is reasonably designed, resulting in low air resistance and effectively reducing the energy loss of the air compressor.

4. 运行稳定、露点精准 Stable operation and accurate dew point

制冷系统匹配合理，控温精准，压力露点稳定，保障连续可靠供气。

The refrigeration system is well-matched, with precise temperature control, stable pressure and dew point, ensuring a continuous and reliable gas supply.

5. 使用寿命长 Long service life

换热器整体钎焊成型，强度高、耐腐蚀、不易泄漏，整机耐用性强。

The heat exchanger is integrally brazed, resulting in high strength, corrosion resistance, and leak-proof design, making the entire unit highly durable.

6. 维护简便 Easy to maintain

内部结构简洁，无复杂易损件，日常维护工作量小，使用成本更低。

With a simple internal structure and no complex or easily damaged parts, it requires less daily maintenance and has lower operating costs.

工况条件与技术指标

Operating conditions and technical specifications

进气温度	Intake temperature	≤42°C
进气压力	Intake pressure	0.6-1.6Mpa
压力露点	Pressure dew point	2-10°C
冷却方式	Cooling method	风冷 air-cooled

技术参数

Technical parameters

参数参考以下标准工况:环境温度38°C,进气压力7barg,进气温度40°C,压力露点3°C(大气压力露点-22°C),极限工况:环境温度50°C,进气温度70°C,进气压力14barg

The parameters are referenced to the following standard operating conditions: ambient temperature 38°C, intake pressure 7 barg, intake temperature 42°C, pressure dew point 3°C (atmospheric pressure dew point -22°C). For electrode operating conditions: ambient temperature 50°C, intake temperature 70°C, intake pressure 14 barg.

型号 model	冷媒 refrigerant 种类 type	流量 flow m ³ /min	压降 pressure drop Bar	接口 interface	电压 Voltage Ph/V/Hz	尺寸 size			功率 KW
				进口气口 air inlet and outlet		长 long (mm)	宽 Width (mm)	高 high (mm)	
BLBH-06	R134A	0.6	0.1	G3/4"	1/220/50	380	330	550	0.28
BLBH-10	R134A	1.6	0.1	G1"	1/220/50	460	390	700	0.38
BLBH-20	R134A	2.6	0.1	G1"	1/220/50	560	460	820	0.58
BLBH-30	R410A	3.8	0.1	G1-1/2"	1/220/50	560	460	820	0.68
BLBH-60	R410A	6.5	0.13	G1-1/2"	1/220/50	630	600	910	1.05
BLBH-80	R410A	8.5	0.12	G1-1/2"	1/220/50	630	600	910	1.60
BLBH-100	R410A	11.5	0.12	G2"	1/220/50	650	600	1040	1.69
BLBH-130	R410A	13.5	0.12	G2"	1/220/50	650	600	1040	2.10
BLBH-160	R410A	17	0.13	G2-1/2"	3/380/50	950	750	1120	2.46
BLBH-200	R407C	20	0.13	G2-1/2"	3/380/50	1000	820	1460	3.20
BLBH-240	R407C	25	0.13	G3"	3/380/50	1000	820	1460	3.53
BLBH-300	R407C	32	0.13	G3"	3/380/50	1000	820	1460	4.30
BLBH-380	R407C	38	0.13	DN100/PN16	3/380/50	1050	900	1710	4.98
BLBH-400	R407C	45	0.11	DN100/PN16	3/380/50	1050	900	1710	5.38
BLBH-500	R407C	55	0.13	DN125/PN16	3/380/50	1350	1150	1860	6.98
BLBH-600	R407C	65	0.14	DN125/PN16	3/380/50	1350	1150	1860	7.70
BLBH-720	R407C	76	0.12	DN125/PN16	3/380/50	1650	1250	1860	8.85
BLBH-850	R407C	90	0.12	DN150/PN16	3/380/50	1950	1300	2090	11.76
BLBH-1000	R407C	110	0.15	DN150/PN16	3/380/50	2250	1300	2090	13.20
BLBH-1200	R407C	130	0.15	DN200/PN16	3/380/50	2250	1300	2090	15.62
BLBH-1500	R407C	150	0.16	DN200/PN16	3/380/50	2680	1530	2180	19.80

工作压力修正系数: Work pressure correction factor:

进气压力(Mpa) Intake pressure	0.4	0.5	0.6	0.7	0.8	1	1.2	1.4
系数 Coefficient	0.77	0.86	0.95	1.05	1.14	1.21	1.23	1.27

环境温度修正系数: Ambient temperature correction factor:

环境温度(°C) Ambient temperature	≤20	≤25	≤30	≤35	≤38	≤40	≤45	≤50
系数 Coefficient	1.16	1.12	1.08	1.05	1.0	0.98	0.80	0.76

进气温度修正系数: Intake air temperature correction factor:

进气温度(°C) Intake temperature	≤38	≤42	≤45	≤50	≤55	≤60	≤65	≤70
系数 Coefficient	1.11	1.04	0.92	0.85	0.70	0.61	0.53	0.46

露点修正系数: Dew point correction factor:

露点(°C) Dew point	3	5	7	10
系数 Coefficient	1.00	1.09	1.19	1.37

变频式压缩空气干燥机

Variable frequency refrigerated dryer

产品介绍

Product Introduction

变频冷冻式压缩空气干燥机是博菱公司在传统冷冻式干燥机基础上升级的新一代节能产品。该机型采用先进的变频驱动技术，配备高性能转子式和涡旋式制冷压缩机，可根据实际用气需求自动调节运行功率，实现精准节能。与变频空压机配套使用，可与空压机系统实现完美同步，显著降低整体能耗。

The variable frequency refrigerated compressed air dryer is a new generation of energy-saving products from Boling Company, upgraded from traditional refrigerated dryers. This model adopts advanced variable frequency drive technology and is equipped with high-performance rotary and scroll refrigeration compressors. It can automatically adjust the operating power according to actual air demand, achieving precise energy savings. When used in conjunction with a variable frequency air compressor, it can achieve perfect synchronization with the air compressor system, significantly reducing overall energy consumption.

变频式冷干机工作原理

Working principle of variable frequency refrigerated dryer

变频冷冻式压缩空气干燥机的工作原理基于冷冻式干燥技术，通过制冷系统将压缩空气冷却至露点温度，析出其中的水分：

The working principle of a variable frequency refrigerated compressed air dryer is based on refrigeration drying technology. It uses a refrigeration system to cool compressed air to its dew point temperature, causing moisture to precipitate out:

1. 预冷与热交换：高温高湿的压缩空气首先进入空气-空气热交换器，与干燥后的低温空气进行热交换，初步降低温度。

1. Pre-cooling and heat exchange: The high-temperature, high-humidity compressed air first enters an air-to-air heat exchanger, exchanging heat with the dried, low-temperature air to initially lower its temperature.

2. 深度制冷：空气进入空气-制冷剂热交换器（蒸发器），通过变频制冷压缩机将温度降至 $2\sim 10^{\circ}\text{C}$ 的露点温度，使空气中的水蒸气冷凝为液态水。

2. Deep refrigeration: The air enters an air-to-refrigerant heat exchanger (evaporator), where the variable frequency refrigeration compressor lowers the temperature to a dew point temperature of $2\sim 10^{\circ}\text{C}$, causing water vapor in the air to condense into liquid water.

3. 气液分离：冷凝水通过高效气水分离器与空气彻底分离，由自动排水阀排出。

3. Gas-liquid separation: The condensate is completely separated from the air by a high-efficiency gas-liquid separator and discharged through an automatic drain valve.

4. 再升温：干燥后的冷空气返回热交换器升温，避免下游管道结露。

4. Reheating: The dried cold air returns to the heat exchanger to reheat, preventing condensation in downstream pipes.

变频系统的核心在于：制冷压缩机的转速可根据进气温度、压力露点、用气负荷等参数实时调节，匹配实际所需的制冷量，避免传统定频机型“满负荷运转、部分负荷能耗高”的缺陷。

The core of the variable frequency system is that the compressor speed can be adjusted in real time according to parameters such as inlet air temperature, pressure dew point, and air load to match the actual required cooling capacity, avoiding the shortcomings of traditional fixed-frequency models that operate at full load but consume high energy at partial load.

变频式冷干机特点

Features of Variable Frequency Refrigerated Dryer

1、节能效果显著 Significant energy-saving effect

• 采用变频制冷压缩机，最低运行功率可降至工频机型的30%

By using a variable frequency refrigeration compressor, the minimum operating power can be reduced to 30% of that of a fixed frequency model.

• 智能调节制冷量输出，部分负荷工况下节能15%~25%

Intelligent adjustment of cooling capacity output, saving 15%~25% energy under partial load conditions.

• 与变频空压机系统同步运行，综合节能可达30%以上

When operating synchronously with a variable frequency air compressor system, overall energy savings can reach over 30%.

• 变频启动无冲击电流，延长压缩机使用寿命

Variable frequency starting eliminates inrush current, extending compressor lifespan.

2、露点稳定可靠 Dew point stable and reliable

• 智能自适应算法，露点控制精度可达 $\pm 0.5^{\circ}\text{C}$

Intelligent adaptive algorithm, dew point control accuracy can reach $\pm 0.5^{\circ}\text{C}$.

• 无论环境温度如何变化，均可稳定输出低露点干燥空气

Regardless of changes in ambient temperature, it can stably output low dew point dry air.

• 避免传统机型因温度波动导致的结霜或过热问题

Avoids the frosting or overheating problems caused by temperature fluctuations in traditional models.



3、低压降设计 Low voltage drop design

- 优化内部管路结构, 增大流通截面积
Optimize internal piping structure and increase flow cross-sectional area
- 高效换热器设计, 降低气侧压降
High-efficiency heat exchanger design reduces gas-side pressure drop
- 整机压降控制在0.1bar以内, 远低于国家标准
The overall voltage drop is controlled within 0.1 bar, which is far below the national standard.

4、智能控制系统 Intelligent control system

- PLC可编程控制器, 实时监测温度、压力、露点等参数
A PLC programmable controller monitors parameters such as temperature, pressure, and dew point in real time.
- 真彩触摸屏人机界面, 运行状态一目了然
A true-color touchscreen human-machine interface provides a clear overview of the operating status.
- 完善的自我诊断功能, 支持远程监控与故障预警
Comprehensive self-diagnostic functions, supporting remote monitoring and fault early warning.

- 适应性强, 适用于用气波动较大的工业场景
Highly adaptable and suitable for industrial scenarios with large fluctuations in gas consumption.

5、稳定运行 Stable operation

- 宽温度适应范围, 高温环境下全速输出, 低温环境下智能调节
Wide temperature range, full-speed output in high-temperature environments, and intelligent adjustment in low-temperature environments.
- 核心部件采用国际知名品牌
The core components are sourced from internationally renowned brands
- 模块化设计便于维护, 核心部件寿命提升约25%
Modular design facilitates maintenance and extends the lifespan of core components by approximately 25%.

6、绿色环保 Green and environmentally friendly

- 采用R410A环保制冷剂, 臭氧破坏系数为零
It uses R410A environmentally friendly refrigerant with a zero ozone depletion potential.
- 符合ISO 8573-1空气质量标准
Compliant with ISO 8573-1 air quality standards

工况条件与技术指标

Operating conditions and technical specifications

进气温度	Intake temperature	5~40°C
工作压力	Work pressure	0.7~1.4MPa
环境温度	Ambient temperature	5~38°C
压力露点	Pressure dew point	2~10°C
制冷剂	refrigerant	R410A
冷却方式	Cooling method	风冷/水冷 Air-cooled/Water-cooled

技术参数

Technical parameters

型号 model	流量 flow m ³ /min	冷媒 refrigerant 种类 type	接口 interface 进出口 air inlet and outlet	电压 Voltage 3Ph/V/ 50Hz	功率 KW	尺寸 size			冷却方式 Cooling method 类别 category
						长 long (mm)	宽 Width (mm)	高 high (mm)	
BLBP-20	21	410A	DN65	380	3.20	1100	820	1460	风冷板翅式 Air-cooled plate-fin type
BLBP-25	26.5	410A	DN80	380	3.53	1100	820	1460	风冷板翅式 Air-cooled plate-fin type
BLBP-30	32	410A	DN80	380	4.30	1100	820	1460	风冷板翅式 Air-cooled plate-fin type
BLBP-40	43	410A	DN100	380	6.03	1250	900	1710	风冷板翅式 Air-cooled plate-fin type
BLBP-50	53	410A	DN125	380	6.98	1450	1150	1860	风冷板翅式 Air-cooled plate-fin type
BLBP-60	62	410A	DN125	380	7.70	1450	1150	1860	风冷板翅式 Air-cooled plate-fin type
BLBP-80	85	410A	DN150	380	11.76	1950	1200	2090	风冷板翅式 Air-cooled plate-fin type
BLBP-100	105	410A	DN150	380	13.5	2250	1300	2090	风冷板翅式 Air-cooled plate-fin type
BLBP-120	126	410A	DN150	380	15.62	2250	1300	2090	风冷板翅式 Air-cooled plate-fin type
BLBP-150	160	410A	DN200	380	19.80	2680	1530	2180	风冷板翅式 Air-cooled plate-fin type
BLBP-200	210	410A	DN200	380	30.0	3450	1750	2300	水冷管壳 Water-cooled tube shell
BLBP-250	260	410A	DN250	380	37.5	3800	1900	2625	水冷管壳 Water-cooled tube shell
BLBP-300	315	410A	DN300	380	45.0	3950	2000	2814	水冷管壳 Water-cooled tube shell
BLBP-400	420	410A	DN350	380	60	4200	2200	2900	水冷管壳 Water-cooled tube shell

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无热再生吸附式干燥机

Heatless regeneration adsorption dryer

无热再生吸附式干燥机工作原理

Working principle of non heat regeneration adsorption dryer

无热再生吸附式压缩空气干燥机是利用干燥剂材料本身所特有的微孔,根据手细作用吸附空气中的水分子,同时根据卸压脱附和吸附余热升温来脱去所吸附的水分。设备一般制成双筒形式,在程序控制器的控制下,两筒交替工作,一筒吸附水分,另一筒解吸再生,连续循环的工作。

The heatless regeneration adsorption compressed air dryer utilizes the unique micropores of the desiccant material to adsorb water molecules in the air through the action of the hand. At the same time, it removes the adsorbed water by heating up based on the pressure relief and adsorption waste heat. The equipment is generally made in a double tube form, and under the control of a program controller, the two tubes work alternately, with one tube adsorbing moisture and the other tube desorbing and regenerating, continuously cycling.

无热再生吸附式干燥机特点

Characteristics of Heatless Regenerative Adsorption Drying Machine

- 1、10分钟标准循环
1. 10 minute standard cycle
- 2、压力露点可达-40°C
2. The pressure dew point can reach -40 ° C
- 3、再生耗气量≤10%
3. Regeneration gas consumption ≤ 10%
- 4、优质的切换阀门,稳定可靠,能保证工作流程的完整性,延长原器件的工作寿命
4. High quality switching valves, stable and reliable, can ensure the integrity of the workflow and extend the working life of the original components.
- 5、选用高吸湿性的活性氧化铝,形状尺寸均匀,强度高,输出露点高,产生的粉尘少,使用寿命长
5. High moisture absorbing activated alumina is selected, with uniform shape and size, high strength, high output dew point, low dust generation, and long service life
- 6、可根据设备的运行负载需求调节再生用气量,达到节能的效果
6. The regeneration gas consumption can be adjusted according to the operating load requirements of the equipment to achieve energy-saving effects
- 7、特殊的气流扩散装置、自动再生确保干燥剂的使用寿命
7. Special airflow diffusion device and automatic regeneration ensure the service life of the desiccant
- 8、可编程微电脑控制器,吸附、再生工作时间可调,以达到你满意的覆点值。
8. Programmable microcomputer controller with adjustable adsorption and regeneration working time to achieve your desired coverage value.



工况条件与技术指标

Operating conditions and technical specifications

进气调度	Air intake scheduling	20-40°C
进气压力	intake pressure	0.6-1.0MPa
再生耗气量	Regenerated air consumption	≤10%
压力损耗	pressure loss	≤进气压力的3% ≤ 3% of intake pressure
进气含油量	Inlet oil content	0.1PPM
压力露点	pressure dew point	标准型-40°C Standard -40 ° C
工作方式	working method	两吸附塔交替连续工作 Two adsorption towers work alternately and continuously
控制方式	Control method	微机程序控制/PLC控制 Microcomputer Program Control/PLC Control
再生方式	Regeneration method	无热再生 Heatless regeneration
电源	power supply	AC220V/50HZ
周期	period	T=10(min)
安装方式	Installation method	室内无基础安装 Indoor installation without foundation

无热再生吸附式干燥机

Heatless regeneration adsorption dryer Technical parameters

型号 model	处理气量 Processing gas volume (m ³ /min)	空气接管口径 Air inlet diameter	设备重量 Equipment weight (KG)	设备尺寸 Device dimensions (mm)	工作压力 work pressure (Mpa)	功率 power (kw)
BLWD-1.6	1.6	RC-1	120	600*350*1730	0.6~1	0.2
BLWD-2.6	2.6	RC-1	120	600*350*1730	0.6~1	0.2
BLWD-3.6	3.8	RC-1.5	207	110*450*1680	0.6~1	0.2
BLWD-6.5	6.8	RC-1.5	260	1150*500*2010	0.6~1	0.2
BLWD-8.5	8.5	RC-2	330	1250*500*1930	0.6~1	0.2
BLWD-10	11	RC-2	375	1300*550*2100	0.6~1	0.2
BLWD-13	13.5	RC-2	375	1500*650*2250	0.6~1	0.2
BLWD-15	16.8	DN65	553	1650*700*2350	0.6~1	0.2
BLWD-20	22	DN65	715	1600*700*2560	0.6~1	0.2
BLWD-25	26	DN80	836	1700*800*2650	0.6~1	0.2
BLWD-30	32	DN80	1050	2050*1000*2700	0.6~1	0.2
BLWD-40	41.5	DN100	1560	2100*1000*2750	0.6~1	0.2
BLWD-50	52	DN100	1730	2100*1000*2850	0.6~1	0.2
BLWD-60	63	DN125	2150	2150*1100*2850	0.6~1	0.2
BLWD-80	90	DN125	2500	2400*1150*2920	0.6~1	0.2
BLWD-100	110	DN150	3700	2650*1300*2860	0.6~1	0.2
BLWD-130	135	DN150	4700	2700*1500*2920	0.6~1	0.2
BLWD-150	160	DN200	5300	2850*1600*2950	0.6~1	0.2
BLWD-180	185	DN200	6350	3000*1650*2980	0.6~1	0.2
BLWD-200	210	DN200	7050	3400*1800*3050	0.6~1	0.2

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微热再生吸附式干燥机

MICRO-HEAT REGENERATION ADSORPTION DRYER

微热再生吸附式干燥机工作原理

Working principle of micro heat regeneration adsorption dryer

微热再生吸附式压缩空气干燥机是利用干燥剂材料本身所特有的微孔,根据毛细作用吸附空气中的水分子,同时根据卸压脱附和吸附余热升温来脱去所吸附的水分。设备一般制成双筒形式,在程序控制器的控制下,两筒交替工作,一筒吸附水分,另一筒解吸再生,连续循环的工作。

The micro heat regeneration adsorption compressed air dryer utilizes the unique micropores of the desiccant material to adsorb water molecules in the air through capillary action, and at the same time, removes the adsorbed water by heating up based on pressure relief and adsorption waste heat. The equipment is generally made in a double tube form, and under the control of a program controller, the two tubes work alternately, with one tube adsorbing moisture and the other tube desorbing and regenerating, continuously cycling.



微热再生吸附式干燥机特点

Characteristics of Micro Heat Regenerative Adsorption Drying Machine

- 1、压力露点可达-40°C;
1. The pressure dew point can reach -40 ° C;
- 2、再生耗气量 ≤ 7%;
2. Regeneration gas consumption ≤ 7%;
- 3、优质的切换阀门,稳定可靠,能保证工作流程的完整性,延长原器件的工作寿命;
3. High quality switching valves, stable and reliable, can ensure the integrity of the workflow and extend the working life of the original components;
- 4、选用高吸湿性的活性氧化铝,形状尺寸均匀,强度高,输出露点高,产生的粉尘少,使用寿命长;
4. Selecting highly hygroscopic activated alumina with uniform shape and size, high strength, high dew point output, minimal dust generation, and long service life;
- 5、采用独特的再生管路设计,确保再生气平面加热和冷吹时能使用再生气分配均匀,使吸附塔中心部位的吸附加热均匀,散热快,再生彻底;
5. Adopting a unique regeneration pipeline design, it ensures that the regeneration gas can be evenly distributed during heating and cold blowing on the regeneration gas plane, enabling suction. The adsorption heating at the center of the attached tower is uniform, with fast heat dissipation and thorough regeneration;
- 6、加热器设计合理,脱湿、再生效果好,耗气量小,加热效率高,最大限度的降低能耗;
6. The heater design is reasonable, with good dehumidification and regeneration effects, low air consumption, high heating efficiency, and maximum reduction of energy consumption;
- 7、可编程微电脑控制器,循环时间,吸附、再生工作时间,加热时间,加热温度可调,以到你满意的用气要求。
7. Programmable microcomputer controller, with adjustable cycle time, adsorption and regeneration working time, heating time, and heating temperature to meet your satisfactory gas requirements.

工况条件与技术指标

Operating conditions and technical specifications

进气温度 Air intake scheduling	20-45°C
进气压力 intake pressure	0.6-1.0MPa
再生耗气量 Regenerated air consumption	≤ 7%
压力损耗 pressure loss	≤ 进气压力的3% ≤ 3% of intake pressure
进气含油量 Inlet oil content	≤ 0.1PPM
压力露点 pressure dew point	标准型-40°C Standard -40 ° C
工作方式 working method	两吸附塔交替连续工作 Two adsorption towers work alternately and continuously
控制方式 Control method	微机程序控制/PLC控制 Microcomputer Program Control/PLC Control
再生方式 Regeneration method	微热再生 Micro thermal regeneration
电源 power supply	AC220V/50HZ
周期 period	T=10(min)
安装方式 Installation method	室内无基础安装 Indoor installation without foundation

微热再生吸附式干燥机

Micro heat regeneration adsorption dryer Technical parameters

型号 model	处理气量 Processing gas volume (m ³ /min)	空气接管口径 Air inlet diameter	设备重量 Equipment weight (KG)	设备尺寸 Device dimensions (mm)	工作压力 work pressure (Mpa)	功率 power (kw)
BLVD-1.6	1.6	RC-1	120	600*350*1730	0.6~1	1
BLVD-2.6	2.6	RC-1	120	600*350*1730	0.6~1	1.2
BLVD-3.6	3.8	RC-1.5	207	110*450*1680	0.6~1	1.5
BLVD-6.5	6.8	RC-1.5	260	1150*500*2010	0.6~1	2.5
BLVD-8.5	8.5	RC-2	330	1250*500*1930	0.6~1	3
BLVD-10	11	RC-2	375	1300*550*2100	0.6~1	4.5
BLVD-13	13.5	RC-2	375	1500*650*2250	0.6~1	4.5
BLVD-15	16.8	DN65	553	1650*700*2350	0.6~1	6
BLVD-20	22	DN65	715	1600*700*2560	0.6~1	8
BLVD-25	26	DN80	836	1700*800*2650	0.6~1	8
BLVD-30	32	DN80	1050	2050*1000*2700	0.6~1	12
BLVD-40	41.5	DN100	1560	2100*1000*2750	0.6~1	17
BLVD-50	52	DN100	1730	2100*1000*2850	0.6~1	17
BLVD-60	63	DN125	2150	2150*1100*2850	0.6~1	22
BLVD-80	90	DN125	2500	2400*1150*2920	0.6~1	30
BLVD-100	110	DN150	3700	2650*1300*2860	0.6~1	35
BLVD-130	135	DN150	4700	2700*1500*2920	0.6~1	40
BLVD-150	160	DN200	5300	2850*1600*2950	0.6~1	52
BLVD-180	185	DN200	6350	3000*1650*2980	0.6~1	58
BLVD-200	210	DN200	7050	3400*1800*3050	0.6~1	68

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不锈钢无热再生吸附式干燥机 Stainless steel heatless regenerative adsorption dryer

产品介绍 Product Introduction

不锈钢无热再生吸附式干燥机是博菱公司针对新能源、半导体、腐蚀工况环境专门设计的高品质吸附式干燥设备。该机型采用不锈钢材质制造吸附塔、管道及关键部件，有效解决传统碳钢材质设备在潮湿或略带腐蚀性压缩空气环境下易腐蚀、易穿孔的问题，大幅延长设备使用寿命，降低维护成本。

The stainless steel heatless regenerative adsorption dryer is a high-quality adsorption drying equipment specially designed by Borling Company for new energy, semiconductor, and corrosive environments. This model uses stainless steel for the adsorption tower, pipes, and key components, effectively solving the problems of traditional carbon steel equipment being prone to corrosion and perforation in humid or slightly corrosive compressed air environments, significantly extending equipment lifespan and reducing maintenance costs.

设备利用干燥剂材料的微孔特性，通过毛细作用吸附压缩空气中的水分子，采用无热再生工艺，无需外部热源即可完成吸附剂的脱附再生，运行成本低，干燥效果好，适用于对压缩空气干燥度要求较高的场合。

The equipment utilizes the microporous characteristics of the desiccant material to adsorb water molecules from compressed air through capillary action. Employing a heatless regeneration process, it completes adsorption and regeneration of the adsorbent without an external heat source, resulting in low operating costs and excellent drying effect, making it suitable for applications requiring high compressed air dryness.

工作原理 Working Principle

不锈钢无热再生吸附式干燥机利用干燥剂材料本身所特有的微孔结构，通过物理吸附原理去除压缩空气中的水分：

The stainless steel heatless regenerative adsorption dryer utilizes the unique microporous structure of the desiccant material itself to remove moisture from compressed air through physical adsorption.

吸附阶段：潮湿压缩空气进入吸附塔，干燥剂（活性氧化铝）的微孔通过毛细作用吸附空气中的水分子，干燥后的压缩空气输出使用。

Adsorption stage: Moist compressed air enters the adsorption tower, and the micropores of the desiccant (activated alumina) adsorb water molecules in the air through capillary action. The dried compressed air is then output for use.

再生阶段：部分干燥空气经减压膨胀后进入另一塔，将吸附塔中已吸附的水分子带出，实现干燥剂的脱附再生。

Regeneration stage: After depressurization and expansion, part of the dry air enters another tower, carrying out the water molecules that have been adsorbed in the adsorption tower, thus realizing the desorption and regeneration of the desiccant.

切换阶段：两塔交替工作，一塔吸附水分，另一塔再生，连续循环，保证持续输出干燥压缩空气。

Switching phase: The two towers work alternately, with one tower adsorbing moisture and the other regenerating, in a continuous cycle to ensure a continuous output of dry compressed air.

不锈钢材质确保设备在潮湿、腐蚀性环境下长期稳定运行。

The stainless steel construction ensures that the equipment can operate stably for a long time in humid and corrosive environments.

产品特点 Product Features

1、整机不锈钢材质，耐腐蚀耐高压

The entire machine is made of stainless steel, which is corrosion-resistant and high-pressure resistant.

吸附塔采用不锈钢材质，耐腐蚀、耐高压，使用寿命长

The adsorption tower is made of stainless steel, which is corrosion-resistant, high-pressure resistant, and has a long service life.

管道系统采用不锈钢管路，避免腐蚀产物堵塞或污染气源

The piping system uses stainless steel pipes to prevent corrosion products from clogging or contaminating the gas source.

不锈钢气动阀门，耐磨耐腐蚀，密封性能好

Stainless steel pneumatic valves are wear-resistant, corrosion-resistant, and have excellent sealing performance.

适用于潮湿、盐雾、略带腐蚀性的压缩空气环境

Suitable for humid, salt spray, and slightly corrosive compressed air environments.

2、无热再生，节能降耗

Heatless regeneration, energy saving and low consumption

无需外部热源，利用部分干燥空气进行再生

Regeneration requires no external heat source and utilizes part of the dry air.

再生耗气量 $\leq 15\%$ ，能耗低

Regeneration gas consumption $\leq 15\%$, low energy consumption

适用于无热源或希望简化系统的场合

Suitable for applications without a heat source or where a simplified system is desired.

3、低露点，高干燥度 Low dew point, high dryness

压力露点可达 -20°C 以下

Pressure dew point can reach below -20°C

干燥剂采用高吸附性活性氧化铝，吸附容量大

The desiccant uses highly adsorbent active alumina with a large adsorption capacity.

形状尺寸均匀，强度高，粉尘少

Uniform shape and size, high strength, and low dust.

输出露点稳定，满足高标准用气要求

Stable dew point output, meeting high standard gas usage requirements.

4、稳定可靠，经久耐用 Stable, reliable, and durable

优质气动切换阀门，动作准确、稳定可靠

High-quality pneumatic switching valves, accurate, stable and reliable operation.

微计算机控制或PLC控制，自动化程度高

Microcomputer program control or PLC control, high degree of automation

干燥剂不易粉化，使用寿命长

The desiccant is not easily pulverized and has a long service life.

适合连续运行，设备利用率高

Suitable for continuous operation, with high equipment utilization.

5、适用工况广泛 Wide range of applicable working conditions

沿海地区、盐雾环境

Coastal areas, salt spray environment

化工、制药行业略带腐蚀性的压缩空气

Slightly corrosive compressed air used in chemical and pharmaceutical industries

矿山、隧道等潮湿工况

Damp working conditions such as mines and tunnels

电子、食品、医药等高标准用气行业

High-standard gas-consuming industries such as electronics, food, and pharmaceuticals



工况条件与技术指标

Operating conditions and technical specifications

进气温度 Intake temperature	<35°C
工作压力 Work pressure	0.7~1.0MPa
再生耗气量 Regeneration gas consumption	≤15%
压力露点 Pressure dew point	-20°C (标准型) / 可达-40°C (特殊配置) -20°C (Standard) / Up to -40°C (Special Configuration)
再生方式 Regeneration method	无热再生 Heatless regeneration
控制方式 Control method	微机程序控制/PLC控制 Microcomputer program control/PLC control
周期时间 Cycle time	10分钟 (标准) 10 minutes (standard)
吸附剂材质 Adsorbent material	不锈钢吸附塔 (活性氧化铝) Stainless steel adsorption tower (activated alumina)
安装方式 Installation method	室内无基础安装 Indoor installation without foundation

不锈钢无热再生吸附式干燥机参数表

Parameter table of stainless steel heatless regenerative adsorption dryer

型号 model	处理气量 Processing gas volume (m ³ /min)	进口气口 Air inlet and outlet	重量 weight (KG)	尺寸 Size (mm)	工作压力 Work pressure (Mpa)	功率 Power (kw)
BLWX-1.6	1.6	RC-1	120	600*350*1730	0.7-1	0.2
BLWX-2.6	2.6	RC-1	120	600*350*1730	0.7-1	0.2
BLWX-3.6	3.6	RC-1.5	207	1100*450*1680	0.7-1	0.2
BLWX-6.8	6.8	RC-1.5	260	1150*500*2010	0.7-1	0.2
BLWX-8.5	8.5	RC-2	330	1250*500*1930	0.7-1	0.2
BLWX-10	11	RC-2	375	1300*550*2100	0.7-1	0.2
BLWX-13	13.5	RC-2	375	1300*550*2100	0.7-1	0.2
BLWX-15	16.8	DN65	553	1500*650*2250	0.7-1	0.2
BLWX-20	22	DN65	715	1650*700*2350	0.7-1	0.2
BLWX-25	26	DN80	836	1600*700*2560	0.7-1	0.2
BLWX-30	32	DN80	1050	1700*800*2650	0.7-1	0.2
BLWX-40	41.5	DN100	1560	2050*1000*2700	0.7-1	0.2
BLWX-50	52	DN100	1730	2100*1000*2750	0.7-1	0.2
BLWX-60	63	DN125	2150	2200*1100*2850	0.7-1	0.2

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不锈钢微热再生吸附式干燥机 Stainless steel micro-heat regenerative adsorption dryer

产品介绍 Product Introduction

不锈钢微热再生吸附式干燥机是博菱公司针对新能源、半导体、腐蚀工况环境专门设计的高品质吸附式干燥设备。该机型采用不锈钢材质制造吸附塔、管道及关键部件，有效解决传统碳钢材质设备在潮湿或略带腐蚀性压缩空气环境下易腐蚀、易穿孔的问题，大幅延长设备使用寿命。

The stainless steel micro-heat regenerative adsorption dryer is a high-quality adsorption drying equipment specially designed by Borling for new energy, semiconductor, and corrosive working environments. This model uses stainless steel for the adsorption tower, pipes, and key components, effectively solving the problem of traditional carbon steel equipment being prone to corrosion and perforation in humid or slightly corrosive compressed air environments, thus significantly extending the equipment's service life.

设备利用干燥剂材料的微孔特性，通过微热再生工艺完成吸附剂的脱附再生，相比无热再生具有再生耗气量更低、露点更稳定的优势，特别适合长期稳定运行的工业场合。

The equipment utilizes the microporous characteristics of the desiccant material to complete the desorption and regeneration of the adsorbent through a micro-heat regeneration process. Compared with heatless regeneration, it has the advantages of lower regeneration gas consumption and more stable dew point, making it particularly suitable for industrial applications requiring long-term stable operation.

工作原理 Working Principle

不锈钢微热再生吸附式干燥机利用干燥剂材料的微孔结构，通过物理吸附原理去除压缩空气中的水分：

The stainless steel micro-heat regenerative adsorption dryer utilizes the microporous structure of the desiccant material to remove moisture from compressed air through physical adsorption.

吸附阶段：潮湿压缩空气进入不锈钢吸附塔，干燥剂（活性氧化铝或分子筛）的微孔通过毛细作用吸附空气中的水分子，干燥后的压缩空气输出使用。

Adsorption stage: Moist compressed air enters the stainless steel adsorption tower, and the micropores of the desiccant (activated alumina or molecular sieve) adsorb water molecules in the air through capillary action. The dried compressed air is then output for use.

微热再生阶段：利用少量加热器对再生空气进行微热升温（约120~150℃），加热后的再生空气进入吸附塔，将吸附的水分子带出，实现干燥剂的脱附再生。

Micro-heat regeneration stage: The regeneration air is heated slightly (about 120~150℃) using a small heater. The heated regeneration air enters the adsorption tower and carries the adsorbed water molecules, thus realizing the desorption and regeneration of the desiccant.

冷却阶段：再生完成后，自然冷却至常温，准备下一循环。

Cooling phase: After regeneration is complete, the system is allowed to cool naturally to room temperature in preparation for the next cycle.

切换阶段：两塔交替工作，一塔吸附水分，另一塔再生，连续循环。

Switching phase: The two towers work alternately, with one tower adsorbing moisture and the other tower regenerating, in a continuous cycle.

产品特点 Product Features

1、整机不锈钢材质，耐腐蚀耐高压

The entire machine is made of stainless steel, which is corrosion-resistant and high-pressure resistant.

吸附塔采用不锈钢材质，耐腐蚀、耐高压，使用寿命长

The adsorption tower is made of stainless steel, which is corrosion-resistant, high-pressure resistant, and has a long service life.

管道系统采用不锈钢管路，避免腐蚀产物堵塞或污染源

The piping system uses stainless steel pipes to prevent corrosion products from clogging or contaminating the gas source.

不锈钢气动阀门，耐磨耐腐蚀，密封性能好

Stainless steel pneumatic valves are wear-resistant, corrosion-resistant, and have excellent sealing performance.

适用于潮湿、盐雾、略带腐蚀性的压缩空气环境

Suitable for humid, salt spray, and slightly corrosive compressed air environments.

2、微热再生，节能降耗

Micro-heat regeneration, energy saving and low consumption

再生耗气量≤8%，比无热再生节能30%以上

Regeneration gas consumption is ≤8%, saving more than 30% energy compared to heatless regeneration.

仅需少量热量（电加热），热效率高

Requires only a small amount of heat (electric heating), with high thermal efficiency.

综合运行成本低

Low overall operating cost

适合长期稳定运行的工业场合

Suitable for industrial applications requiring long-term stable operation

3、低露点，高干燥度 Low dew point, high dryness

压力露点可达-40℃以下

Pressure dew point can reach below -40℃

特殊配置可达-70℃

Special configuration can reach -70℃

高吸附性活性氧化铝，吸附容量大

Highly adsorbent active alumina with large adsorption capacity

输出露点稳定，满足高标准用气要求

Stable dew point output, meeting high standard gas usage requirements.

4、再生彻底，寿命长 Thorough regeneration, long lifespan

微热再生使吸附剂再生更彻底

Micro-thermal regeneration makes adsorbent regeneration more thorough.

干燥剂不易粉化，使用寿命长

The desiccant is not easily pulverized and has a long service life.

露点稳定，无波动

Dew point is stable and fluctuates.

5、稳定可靠 Stable and reliable

优质气动切换阀门，动作准确、稳定可靠

High-quality pneumatic switching valves, accurate, stable and reliable operation.

PLC可编程控制器，自动化程度高

PLC programmable controller, high degree of automation

多重保护功能，运行安全

Multiple protection functions ensure safe operation.

适合连续运行，设备利用率高

Suitable for continuous operation, with high equipment utilization.



6、适用工况广泛 Wide range of applicable working conditions

沿海地区、盐雾环境 Coastal areas, salt spray environment
 化工、制药行业略带腐蚀性的压缩空气 Slightly corrosive compressed air used in chemical and pharmaceutical industries
 矿山、隧道等潮湿工况 Damp working conditions such as mines and tunnels
 电子、食品、医药等高标准用气行业 High-standard gas-consuming industries such as electronics, food, and pharmaceuticals
 工况条件与技术指标 Operating Conditions and Technical Specifications

工况条件与技术指标

Operating conditions and technical specifications

进气温度 Intake temperature	<35°C
工作压力 Work pressure	0.7~1.0MPa
再生耗气量 Regeneration gas consumption	≤8%
压力露点 Pressure dew point	-40°C (标准型) / 可达-70°C (特殊配置) -40°C (Standard Model) / Up to -70°C (Special Configuration)
再生方式 Regeneration method	微热再生 Microthermal regeneration
控制方式 Control method	微机程序控制/PLC控制 Microcomputer program control/PLC control
周期时间 Cycle time	2~6小时 2-6 hours
电源 power supply	AC220V/50Hz / 380V/50Hz
安装方式 Installation method	室内无基础安装 Indoor installation without foundation
吸附剂 Adsorbent	活性氧化铝/分子筛 Activated alumina/molecular sieve
塔体材质 Tower material	不锈钢 Stainless steel

不锈钢微热再生吸附式干燥机参数表

Parameter table of stainless steel heatless regenerative adsorption dryer

型号 model	处理气量 Processing gas volume (m ³ /min)	进出口口 Air inlet and outlet	重量 weight (KG)	尺寸 Size (mm)	工作压力 Work pressure (Mpa)	功率 Power (kw)
BLVX-1.6	1.6	RC-1	208	600*350*1730	0.7-1	1
BLVX-2.6	2.6	RC-1	208	600*350*1730	0.7-1	1.2
BLVX-3.6	3.6	RC-1.5	223	1100*450*1680	0.7-1	1.5
BLVX-6.8	6.8	RC-1.5	278	1150*500*2010	0.7-1	1.5
BLVX-8.5	8.5	RC-2	353	1250*500*1930	0.7-1	3
BLVX-10	11	RC-2	403	1300*550*2100	0.7-1	4.5
BLVX-13	13.5	RC-2	403	1300*550*2100	0.7-1	4.5
BLVX-15	16.8	DN65	621	1500*650*2250	0.7-1	6
BLVX-20	22	DN65	715	1650*700*2350	0.7-1	8
BLVX-25	26	DN80	1080	1600*700*2560	0.7-1	8
BLVX-30	32	DN80	1250	1700*800*2650	0.7-1	12
BLVX-40	41.5	DN100	1550	2050*1000*2700	0.7-1	17
BLVX-50	52	DN100	1850	2100*1000*2750	0.7-1	17
BLVX-60	63	DN125	2050	2200*1100*2850	0.7-1	22

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防爆无热再生吸附式干燥机

Explosion-proof heatless regenerative adsorption dryer

产品介绍

Product Introduction

防爆型再生吸附式干燥机是博菱公司为石油、化工、制药、涂料、喷涂等存在易燃易爆隐患的行业专门设计的产品。该机型采用电器部分防爆设计，核心电气元件采用防爆型或本质安全型设计，在保证优异干燥性能的同时，具备可靠的防爆安全保障，特别适用于IIB、IIC类爆炸性气体环境。

The explosion-proof regenerative adsorption dryer is a product specially designed by Borling for industries with flammable and explosive hazards, such as petroleum, chemical, pharmaceutical, coating, and spraying. This model features an explosion-proof electrical design, with core electrical components using flameproof or intrinsically safe designs. While ensuring excellent drying performance, it also provides reliable explosion-proof safety, making it particularly suitable for IIB and IIC class explosive gas environments.

设备利用干燥剂材料的微孔特性，通过无热再生工艺完成吸附剂的脱附再生，无需外部热源，运行成本低，特别适合无热源或移动设备的场合。

The equipment utilizes the microporous characteristics of the desiccant material to complete the desorption and regeneration of the adsorbent through a heatless regeneration process. No external heat source is required, resulting in low operating costs, making it especially suitable for applications without heat sources or mobile equipment.

工作原理

Working Principle

防爆型无热再生吸附式干燥机利用干燥剂材料的微孔结构，通过物理吸附原理去除压缩空气中的水分：

Explosion-proof, heatless regenerative adsorption dryers utilize the microporous structure of desiccant materials to remove moisture from compressed air through physical adsorption.

吸附阶段：潮湿压缩空气进入吸附塔，干燥剂（活性氧化铝或分子筛）的微孔通过毛细作用吸附空气中的水分子，干燥后的压缩空气输出使用。

Adsorption stage: Moist compressed air enters the adsorption tower, and the micropores of the desiccant (activated alumina or molecular sieve) adsorb water molecules in the air through capillary action. The dried compressed air is then output for use.

再生阶段：部分干燥空气经减压膨胀后进入另一塔，将吸附塔中已吸附的水分子带出，实现干燥剂的脱附再生。

Regeneration stage: After depressurization and expansion, part of the dry air enters another tower, carrying out the water molecules that have been adsorbed in the adsorption tower, thus realizing the desorption and regeneration of the desiccant.

切换阶段：两塔交替工作，一塔吸附水分，另一塔再生，连续循环。

Switching phase: The two towers work alternately, with one tower adsorbing moisture and the other tower regenerating, in a continuous cycle.

防爆设计重点在电气控制系统：控制箱、接线盒、传感器、阀门等电器部分采用防爆或本安设计，防止电气火花引燃危险气体。

The focus of explosion-proof design is on the electrical control system: electrical components such as control boxes, junction boxes, sensors, and valves adopt explosion-proof or intrinsically safe designs to prevent electrical sparks from igniting dangerous gases.



产品特点 Product Features

- 1、电器部分防爆设计 Explosion-proof design for electrical components**
防爆型控制箱：核心电气控制元件置于防爆外壳内
Explosion-proof control box: Core electrical control components are housed within an explosion-proof enclosure.
本质安全型仪表：温度传感器、压力开关等采用Ex ia本安设计
Intrinsically safe instruments: Temperature sensors, pressure switches, etc., adopt Ex ia intrinsically safe design.
防爆接线盒：电气连接处采用防爆型接线盒
Explosion-proof junction box: Explosion-proof junction boxes are used at electrical connections.
防爆电磁阀：控制气动阀门启闭的电磁阀采用防爆型
Explosion-proof solenoid valve: The solenoid valve controlling the opening and closing of the pneumatic valve is explosion-proof.
适用危险区域：Zone 1、Zone 2, IIB、IIC类爆炸性气体
Applicable hazardous areas: Zone 1, Zone 2, Class IIB and IIC explosive gases
- 2、无热再生，节能降耗 Heatless regeneration, energy saving and low consumption**
无需外部热源，利用部分干燥空气进行再生
Regeneration requires no external heat source and utilizes part of the dry air.
再生耗气量 $\leq 15\%$ ，能耗低
Regeneration gas consumption $\leq 15\%$, low energy consumption
适合无热源或移动设备的场合
Suitable for applications without heat sources or mobile devices.
结构简单可靠，维护成本低
Simple and reliable structure, low maintenance cost

- 3、低露点，高干燥度 Low dew point, high dryness**
压力露点可达 -20°C 以下
Pressure dew point can reach below -20°C
高吸附性活性氧化铝，吸附容量大
Highly adsorbent active alumina with large adsorption capacity
输出露点稳定，满足高标准用气要求
Stable dew point output, meeting high standard gas usage requirements.
- 4、稳定可靠 Stable and reliable**
优质气动切换阀门，动作准确、稳定可靠
High-quality pneumatic switching valves, accurate, stable and reliable operation.
微机程序控制，自动化程度高
Microcomputer program control, high degree of automation
干燥剂不易粉化，使用寿命长
The desiccant is not easily pulverized and has a long service life.
适合连续运行，设备利用率高
Suitable for continuous operation, with high equipment utilization.
- 5、适用行业 Applicable industries**
石油、化工、制药、农药、涂料、喷涂、军工、烟火、橡胶、塑料
Petroleum, chemical, pharmaceutical, pesticide, coating, spraying, military, fireworks, rubber, plastics

工况条件与技术指标

Operating conditions and technical specifications

进气温度 Intake temperature	<35°C
工作压力 Work pressure	0.7~1.0MPa
再生耗气量 Regeneration gas consumption	≤15%
压力露点 Pressure dew point	-20°C (标准型) / 可达-40°C (特殊配置) -20°C (Standard) / Up to -40°C (Special Configuration)
再生方式 Regeneration method	无热再生 Heatless regeneration
控制方式 Control method	微机程序控制/PLC控制 Microcomputer program control/PLC control
周期时间 Cycle time	10分钟 10 minutes
防爆类型 Explosion-proof type	电器部分防爆 (防爆型+本安型) Explosion-proof electrical components (flameproof + intrinsically safe)
适用区域 Applicable Areas	Zone 1、Zone 2
气体组别 Gas Group	IIA、IIB

防爆无热再生吸附式干燥机参数表

Parameter table of explosion-proof heatless regenerative adsorption dryer

型号 model	处理气量 Processing gas volume (m ³ /min)	进出气口 Air inlet and outlet	重量 weight (KG)	尺寸 Size (mm)	工作压力 Work pressure (Mpa)	功率 Power (kw)
BLWD-1.6EX	1.6	RC-1	120	800*350*1730	0.6-1	0.2
BLWD-2.6EX	2.6	RC-1	120	800*350*1730	0.6-1	0.2
BLWD-3.6EX	3.6	RC-1.5	207	1300*450*1730	0.6-1	0.2
BLWD-6.8EX	6.8	RC-1.5	260	1350*500*2010	0.6-1	0.2
BLWD-8.5EX	8.5	RC-2	330	1450*500*1930	0.6-1	0.2
BLWD-10EX	11	RC-2	375	1500*550*2100	0.6-1	0.2
BLWD-13EX	13.5	RC-2	375	1500*550*2100	0.6-1	0.2
BLWD-15EX	16.8	DN65	553	1700*650*2250	0.6-1	0.2
BLWD-20EX	22	DN65	680	1850*700*2350	0.6-1	0.2
BLWD-25EX	26	DN80	950	1850*700*2560	0.6-1	0.2
BLWD-30EX	32	DN80	1480	1900*800*2650	0.6-1	0.2
BLWD-40EX	41.5	DN100	1950	2250*1000*2700	0.6-1	0.2
BLWD-50EX	52	DN100	2300	2300*1000*2750	0.6-1	0.2
BLWD-60EX	63	DN125	3280	2400*1100*2850	0.6-1	0.2

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防爆微热再生吸附式干燥机

Explosion-proof micro-heat regeneration adsorption dryer

1、微热再生, 节能低耗

Micro-heat regeneration, energy saving and low consumption

再生耗气量 $\leq 8\%$, 比无热再生节能30%以上

Regeneration gas consumption is $\leq 8\%$, saving more than 30% energy compared to heatless regeneration.

仅需少量热量(电加热), 热效率高

Requires only a small amount of heat (electric heating), with high thermal efficiency.

综合运行成本低

Low overall operating cost

适合长期稳定运行的工业场合

Suitable for industrial applications requiring long-term stable operation

2、低露点, 高干燥度

Low dew point, high dryness

压力露点可达 -40°C 以下

Pressure dew point can reach below -40°C

高吸附性活性氧化铝, 吸附容量大

Highly adsorbent active alumina with large adsorption capacity

输出露点稳定, 无波动

Stable output dew point with no fluctuations

3、再生彻底, 使用寿命长

Thorough regeneration, long service life

微热再生使吸附剂再生更彻底

Micro-thermal regeneration makes adsorbent regeneration more thorough.

干燥剂不易粉化, 使用寿命长

The desiccant is not easily pulverized and has a long service life.

露点长期稳定

long-term stability of dew point



工况条件与技术指标

Operating conditions and technical specifications

进气温度 Intake temperature	$< 35^{\circ}\text{C}$
工作压力 Work pressure	0.7~1.0MPa
再生耗气量 Regeneration gas consumption	$\leq 8\%$
压力露点 Pressure dew point	-40°C (标准型) / 可达 -70°C (特殊配置) -40°C (Standard Model) / Up to -70°C (Special Configuration)
再生方式 Regeneration method	微热再生 Microthermal regeneration
控制方式 Control method	微机程序控制/PLC控制 Microcomputer program control/PLC control
周期时间 Cycle time	2~6小时 2-6 hours
防爆类型 Explosion-proof type	电器部分防爆(防爆型+本安型) Explosion-proof electrical components (flameproof + intrinsically safe)
适用区域 Applicable Areas	Zone 1、Zone 2

防爆微热再生吸附式干燥机参数表

Parameter table of explosion-proof heatless regenerative adsorption dryer

型号 model	处理气量 Processing gas volume (m ³ /min)	进口气口 Air inlet and outlet	重量 weight (KG)	尺寸 Size (mm)	工作压力 Work pressure (Mpa)	功率 Power (kw)
BLVD-1.6EX	1.6	RC-1	208	800*350*1730	0.6-1	1
BLVD-2.6EX	2.6	RC-1	208	800*350*1730	0.6-1	1.2
BLVD-3.6EX	3.6	RC-1.5	223	1300*450*1730	0.6-1	1.5
BLVD-6.8EX	6.8	RC-1.5	278	1350*500*2010	0.6-1	2.5
BLVD-8.5EX	8.5	RC-2	353	1450*500*1930	0.6-1	3
BLVD-10EX	11	RC-2	403	1500*550*2100	0.6-1	4.5
BLVD-13EX	13.5	RC-2	403	1500*550*2100	0.6-1	4.5
BLVD-15EX	16.8	DN65	621	1700*650*2250	0.6-1	6
BLVD-20EX	22	DN65	715	1850*700*2350	0.6-1	8
BLVD-25EX	26	DN80	1080	1800**700*2560	0.6-1	8
BLVD-30EX	32	DN80	1250	1900*800*2650	0.6-1	12
BLVD-40EX	41.5	DN100	1550	2250*1000*2700	0.6-1	17
BLVD-50EX	52	DN100	1850	2300*1000*2750	0.6-1	17
BLVD-60EX	63	DN125	2050	2400*1100*2850	0.6-1	22

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组合式低露点干燥机

COMBINED LOW DEW POINT DRYER

组合式低露点干燥机工作原理

Working principle of combined low dew point dryer

组合式低露点干燥机由冷冻式干燥机与吸附式(无热或微热)干燥机通过合理的管路连接和容积搭配而成。冷冻式干燥机除水力极强,运行能耗较低,无气量损耗,与吸附式干燥机能达到较低露点的特点结合,最大限度的发挥二者的优点。在压缩空气进入吸附式干燥机前,先用冷冻式干燥机进行前置预处理,让大量的水分(约80%)在冷冻式干燥机里先行除去,再进入吸附式干燥机做深度干燥,能够达到很低的压力露点,最低可达-70°C。它利用冷冻式干燥机的前置除水设备。利用冷冻式干燥机的强大除水能力使干燥塔进水负荷大幅降低,经冷却外理后进入吸附塔的水分比普通干燥机的20%左右,在其他条件不变的情况下,用于吸纳水蒸气的低露点干燥空气也可以相同幅度的下降。即再生气量约为普通吸附式干燥机的1/5。从而确实为降低再生能耗、特别是节约再生气能耗创造了条件。从而达到了最佳经济运行点和高品质的低露点成品气。



The combined low dew point dryer is composed of a cryogenic dryer and an adsorption (no heat or micro heat) dryer through reasonable pipeline connections and volume matching. The freeze dryer has extremely strong water removal power, low operating energy consumption, and no gas loss. Combined with the adsorption dryer's ability to achieve a lower dew point, it maximizes the advantages of both. Before the compressed air enters the adsorption dryer, a cryogenic dryer is used for pre-treatment, allowing a large amount of moisture (about 80%) to be removed in the cryogenic dryer before entering the adsorption dryer for deep drying, which can achieve a very low dew point pressure, as low as -70 °C. It utilizes the pre dehydration equipment of the cryogenic dryer. By utilizing the powerful water removal ability of the freeze dryer, the water load on the drying tower is significantly reduced. After cooling and treatment, the moisture entering the adsorption tower is about 20% of that of a regular dryer. Under other conditions remaining unchanged, the low dew point dry air used to absorb water vapor can also be reduced to the same extent. The regeneration gas volume is about 1/5 of that of a regular adsorption dryer. This has indeed created conditions for reducing regeneration energy consumption, especially for saving regeneration gas energy consumption. Thus achieving the optimal economic operating point and high-quality low dew point finished gas.

组合式低露点干燥机特点

Characteristics of Combined Low Dew Point Drying Machine

1. 低露点:组合式低露点干燥机能达到很低的压力露点,常规可达-40°C以下,根据不同用户的要求最低可达-70°C
1. Low Dew Point: The combined low dew point dryer can achieve a very low pressure dew point, typically below -40 °C, and can reach a minimum of -70 °C according to different user requirements
2. 低能耗:组合式低露点干燥机再生耗气量仅需3%-5%,大大节约了压缩空气消耗;
2. Low energy consumption: The combined low dew point dryer only requires 3% -5% of regeneration air, greatly saving compressed air consumption;
3. 组合式低露点干燥机的所有操作开关及显示仪表都集中在箱板的面板上,冷冻式干燥机与吸附式再生干燥机根据客户需要可吸干机独立运行或冷、吸同时进行;
3. All operations and display instruments of the combined low dew point dryer are centralized on the panel of the box board. The refrigerated dryer and the adsorption regeneration dryer can operate independently or perform cooling and suction simultaneously according to customer needs;
4. 气液分离器结合了旋风分离和滤芯分离两种分离技术。能够充分的将已被冷却的液态水分分离出来,充分发挥冷冻式干燥机的效率;
4. The gas-liquid separator combines two separation technologies: cyclone separation and filter separation. Being able to fully separate the cooled liquid moisture and fully utilize the efficiency of the freeze dryer;
5. 吸附式干燥机部分,采用进口品牌先导电磁阀、气动蝶阀,性能可靠,切换稳定,动作准确;
5. The adsorption dryer adopts imported brand pilot solenoid valves and pneumatic butterfly valves, which have reliable performance, stable switching, and accurate action;
6. 制冷压缩机采用法国百福马(PERFORMER)、德国比泽尔(BITZER)、谷轮(COPELAND)、法国美优乐(MANEUROP)、台湾擎宇(CHYNTEC)等品牌的中高温型全封闭及半封闭制冷压缩机;
6. The refrigeration compressor adopts high temperature fully enclosed and semi enclosed refrigeration compressors from brands such as PERFORMER from France, BITZER from Germany, COPELAND from Germany, MANEUROP from France, and CHYNTEC from Taiwan;
7. 冷冻式干燥机部分的热交换器、冷凝器选用优质高效螺纹管;
7. High quality and efficient threaded pipes are selected for the heat exchanger and condenser of the refrigerated dryer;
8. 吸附式干燥机部分,采用科学合理的吸附塔结构设计,独创的压缩空气扩散器、分别板、气流分布盘管设计,保证吸附剂与压缩空气充分接触,避免隧道效应,有效降低高速气流对吸附剂的冲击,降低吸附剂的磨损,延长吸附剂的使用寿命,保证空气稳定露点;
8. The adsorption dryer adopts a scientifically reasonable adsorption tower structure design, original compressed air diffuser, separation plate, and airflow distribution coil design to ensure full contact between the adsorbent and compressed air, avoid tunnel effect, effectively reduce the impact of high-speed airflow on the adsorbent, reduce the wear of the adsorbent, extend the service life of the adsorbent, and ensure stable dew point of the air;
10. 吸附式干燥机部分,可根据设备的运行负载需求,空气露点的高低,调节再生气量,达到节能的效果;
10. The adsorption dryer can adjust the regeneration gas volume according to the operating load requirements of the equipment and the dew point of the air, achieving energy-saving effects;
11. 吸附式干燥机部分,选用高性能的吸附剂,具有更大的活性表面积,更高的强度,更长的使用寿命;
11. The adsorption dryer uses high-performance adsorbents with larger active surface area, higher strength, and longer service life;
12. 控制方式:根据用户用气要求不同,采用多种不同的控制方式。
12. Control method: Multiple control methods are adopted according to different gas requirements of users.

工况条件与技术指标 Operating conditions and technical specifications

进气湿度	Inlet humidity	20-45°C
进气压力	intake pressure	0.6-1.0MPa
压力损耗	pressure loss	≤进气压力的5% ≤ 5% of intake pressure
压力露点	pressure dew point	标准型-40°C Standard -40 ° C
再生耗气量	Regenerated air consumption	3%-5%
冷却方式	cooling method	风冷/水冷 Air cooling/water cooling
环境温度	ambient temperature	≤38° C
进气含油量	Inlet oil content	≤0.1PPM
工作方式	working method	两吸附交替连续工作 Two adsorption towers work alternately and continuously
控制方式	Control method	微电脑自动控制 Microcomputer automatic control
再生方式	Regeneration method	微热再生 Micro thermal regeneration
电源	power supply	1-8m ³ /min AC220V/50HZ 10Nm ³ /min及以上 AC380V/50HZ
周期	period	T=2-6 (h)
安装方式	Installation method	室内无基础安装 Indoor installation without foundation

组合式低露点干燥机 Combination low dew point dryer Technical parameters

型号 model	处理气量 Processing gas volume (m ³ /min)	空气接管口径 Air inlet diameter	制冷剂 Refrigerant	工作压力 work pressure (Mpa)	电压 Voltage (v)	设备重量 Equipment weight (KG)	设备尺寸 Device dimensions (mm)
BLZD-1.6	1.6	RC-1	R134A	1.75	220	320	900*800*1650
BLZD-2.6	2.6	RC-1	R134A	2.3	220	470	900*850*1660
BLZD-3.6	4	RC-1.5	R22	2.7	220	460	1150*1100*1680
BLZD-6.8	7.5	RC-1.5	R22	3.8	220	680	1300*1200*1880
BLZD-8.2	8.5	RC-2	R22	6.3	220	850	1350*1200*1880
BLZD-10	11	RC-2	R22	7.3	380	980	1400*1350*2050
BLZD-13	13	RC-2	R22	7.5	380	1050	1400*1350*2050
BLZD-15	15	DN65	R22	9.5	380	1380	1650*1450*2250
BLZD-20	20	DN80	R22	12.5	380	1680	1850*1500*2280
BLZD-25	25	DN80	R22	15.2	380	1950	1850*1500*2480
BLZD-30	30	DN80	R22	18.5	380	2230	1950*1600*2600
BLZD-40	40	DN100	R22	26.5	380	2750	2200*1850*2770
BLZD-50	50	DN100	R22	32	380	3100	2400*1900*2800
BLZD-60	60	DN100	R22	36.5	380	3450	2500*1950*2750
BLZD-80	80	DN100	R22	45	380	3980	2700*2400*2900

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鼓风热再生吸附式干燥机

Blower-air thermal regeneration adsorption dryer

产品介绍

Product Introduction

微气耗鼓风热吸干机是一款高效节能的压缩空气干燥设备，专为工业领域提供洁净干燥的压缩空气而设计。它通过创新的鼓风热再生技术，在保障卓越干燥效果的同时，实现了极低的再生耗气量，是传统微热再生干燥机的理想升级方案，广泛应用于精密制造、电子、医药、食品、化工等对压缩空气品质和能耗有严格要求的行业。

The low-air-consumption blower-heated desiccant dryer is a highly efficient and energy-saving compressed air drying device, specifically designed to provide clean and dry compressed air for industrial applications. Through innovative blower-heated regeneration technology, it achieves extremely low regeneration air consumption while ensuring excellent drying results. It is an ideal upgrade solution for traditional micro-heated regeneration dryers and is widely used in industries with strict requirements for compressed air quality and energy consumption, such as precision manufacturing, electronics, pharmaceuticals, food, and chemicals.

稳定可靠，连续运行：双吸附塔交替作业，一侧持续干燥压缩空气，另一侧同步完成干燥剂的再生与冷却，实现 24 小时不间断输出干燥空气，保障生产流程稳定。

Stable and reliable, continuous operation: The dual adsorption towers operate alternately, with one side continuously drying compressed air and the other side simultaneously regenerating and cooling the desiccant, achieving 24-hour uninterrupted output of dry air and ensuring stable production processes.

品质保障，保护设备：可将压缩空气露点稳定控制在极低水平，有效避免管路锈蚀、气动设备卡顿、精密仪表失灵及产品受潮报废，延长下游设备使用寿命。

Quality assurance and equipment protection: It can stably control the dew point of compressed air at an extremely low level, effectively avoiding pipeline corrosion, pneumatic equipment jamming, precision instrument failure, and product moisture damage and scrapping, thus extending the service life of downstream equipment.

适配性强，场景广泛：特别适用于对再生耗气量有严格限制的场景，同时兼容不同流量和压力等级的压缩空气系统，安装与维护便捷。

Highly adaptable and suitable for a wide range of scenarios: It is particularly suitable for scenarios with strict limitations on regeneration air consumption, while also being compatible with compressed air systems of different flow and pressure levels, and is easy to install and maintain.

微气耗鼓风热吸干机工作原理

Working principle of low air consumption blower heat absorption dryer

鼓风热再生吸附式干燥机属于加热再生干燥器，它的工作原理采用鼓风机抽取环境空气，经过加热后去再生吸附塔的干燥剂，避免了微热再生吸附式干燥机在加热阶段的耗气损失，只是在冷吹阶段采用一小部分成品气，因此整体耗气量小，特别适用于要求再生耗气量小的场合。

The blower-type hot regeneration adsorption dryer is a type of heated regeneration dryer. Its working principle is to use a blower to draw in ambient air, heat it, and then use it to regenerate the desiccant in the adsorption tower. This avoids the gas loss during the heating stage of the micro-heat regeneration adsorption dryer. Only a small portion of the finished gas is used during the cold blowing stage, so the overall gas consumption is small, making it particularly suitable for occasions that require low regeneration gas consumption.

产品特点 Product Features

1、微气耗甚至零气耗 Low or even zero gas consumption

再生介质为环境空气经鼓风机加压

The regeneration medium is ambient air pressurized by a blower.

压缩空气不参与再生过程

Compressed air does not participate in the regeneration process

再生耗气量极少，大幅节约压缩空气

Regeneration consumes very little air, significantly saving compressed air.

特别适合用气紧张的工厂

Especially suitable for factories with tight gas supply

2、鼓风机外部加热再生 External heating regeneration of blower

利用鼓风机吸入环境空气作为再生介质

Using a blower to draw in ambient air as the regeneration medium

电加热器精准控温，再生效率高

Electric heaters provide precise temperature control and high regeneration efficiency.

加热温度均匀，吸附剂再生彻底

Uniform heating temperature ensures thorough adsorbent regeneration.

3、超低露点，可达-40℃以下 Ultra-low dew point, reaching below -40°C

压力露点可达-40℃~-70℃

Pressure dew point can reach -40°C to -70°C

再生彻底，吸附剂利用率高

Thorough regeneration and high adsorbent utilization rate

露点稳定，无波动

Dew point is stable and fluctuates.

满足最严苛的用气要求

Meets the most stringent gas usage requirements

4、运行成本低 Low operating costs

无压缩空气自再生耗气损失

No compressed air self-regeneration loss

电加热功率适中，能耗低

The electric heating power is moderate and the energy consumption is low.

鼓风机能耗低

Blower has low energy consumption

综合运行成本低于无热、微热再生干燥机

The overall operating cost is lower than that of heatless and micro-heat regeneration dryers.

5、运行稳定可靠 Stable and reliable operation

PLC可编程控制器，自动化程度高

PLC programmable controller, high degree of automation

优质气动阀门，动作准确可靠

High-quality pneumatic valves, accurate and reliable operation.

干燥剂不易粉化，使用寿命长

The desiccant is not easily pulverized and has a long service life.

适合连续运行

Suitable for continuous operation

6、适用场合 Applicable occasions

大气量用气场合 (20Nm³/min以上)

Large-volume gas consumption applications (above 20 Nm³/min)

用气紧张，希望减少成品气损耗的工厂

Factories facing gas shortages and seeking to reduce finished gas losses

需要超低露点的场合

Applications requiring ultra-low dew point

半导体、电子、医药、食品等行业

Semiconductor, electronics, pharmaceutical, food and other industries



工况条件与技术指标 Operating conditions and technical specifications

进气温度 Intake temperature	<38°C
进气压力 Intake pressure	0.7~1.0Mpa
再生耗气量 Regeneration gas consumption	3%
压力损耗 Pressure loss	≤进气压力的5% ≤5% of intake pressure
成品气露点 Pressure dew point	-40°C
进气含油量 Intake air oil content	≤0.01PPM
工作方式 working methods	双塔交替循环工作 The two towers work alternately in a cycle.
控制方式 Control method	PLC控制 PLC control
再生方式 Regeneration method	加热再生 Heating regeneration
电源 power supply	AC 380V/50Hz
环境温度 Ambient temperature	5-35°C
安装方式 Installation method	室内无基础安装 Indoor installation without foundation

微气耗鼓风机热再生吸附式干燥机参数表 Parameter table of low air consumption blower heat regeneration adsorption dryer

型号 model	处理气量 Processing gas volume (m ³ /min)	工作压力 work pressure	空气接管口径 Air inlet diameter	3Ph/V/50Hz	设备尺寸 Device dimensions (mm)	设备重量 Equipment weight (KG)
BLGF-20	21	0.7-1.0	DN80	380	1900*1180*2580	1280
BLGF-25	26	0.7-1.0	DN80	380	2000*1250*2600	1510
BLGF-30	32	0.7-1.0	DN80	380	2100*1350*2700	1750
BLGF-40	43	0.7-1.0	DN100	380	2200*1500*2780	2480
BLGF-50	54	0.7-1.0	DN100	380	2400*1600*2880	2880
BLGF-60	66	0.7-1.0	DN125	380	2600*1700*2950	3450
BLGF-80	85	0.7-1.0	DN150	380	2900*1800*3050	4620
BLGF-100	108	0.7-1.0	DN150	380	3200*1950*3050	5750
BLGF-120	130	0.7-1.0	DN150	380	3400*2200*3100	6900
BLGF-150	160	0.7-1.0	DN200	380	3950*2700*3300	8700
BLGF-200	210	0.7-1.0	DN200	380	4550*2900*3450	11500
BLGF-250	265	0.7-1.0	DN200	380	4750*3100*3550	14500
BLGF-300	320	0.7-1.0	DN300	380	4900*3200*3500	17300

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零气耗鼓风热吸干机

Zero-air-consumption blower heat absorption dryer

产品介绍

Product Introduction

零气耗鼓风热再生吸附式干燥机是基于变压、变温吸附原理研发的高效节能型压缩空气干燥设备，它创新性地采用环境空气鼓风加热再生技术，彻底摒弃传统干燥机依赖成品压缩空气再生的模式，实现再生过程零气耗，综合能耗较传统机型降低70%以上。

The zero-air-consumption blower-heat regeneration adsorption dryer is a high-efficiency, energy-saving compressed air drying equipment developed based on the principles of pressure swing and temperature swing adsorption. It innovatively employs ambient air blower heating and regeneration technology, completely abandoning the traditional dryer's reliance on finished compressed air for regeneration, achieving zero air consumption during the regeneration process. Overall energy consumption is reduced by more than 70% compared to traditional models.

设备采用双塔交替工作结构，一塔在高压常温状态下吸附压缩空气中的水分，另一塔在高温低压环境中完成吸附剂再生，两塔定时切换，确保干燥压缩空气连续稳定供应。其压力露点最低可达 -40°C （定制款可达 -70°C ），能满足制药、食品、电子、化工等多行业对高洁净干燥压缩空气的严苛需求，是工业压缩空气后处理领域的节能升级优选方案。

The equipment adopts a dual-tower alternating working structure. One tower adsorbs moisture from the compressed air under high pressure and normal temperature conditions, while the other tower regenerates the adsorbent in a high-temperature, low-pressure environment. The two towers switch periodically to ensure a continuous and stable supply of dry compressed air. Its pressure dew point can reach as low as -40°C (Customized models can withstand temperatures down to -70°C), meeting the stringent requirements of the pharmaceutical, food, electronics, and chemical industries for high-cleanliness dry compressed air. It is the preferred energy-saving upgrade solution in the field of industrial compressed air post-treatment.



零气耗鼓风热吸干机工作原理

Working principle of zero-air-consumption blower heat absorption dryer

1. 核心吸附原理 Core Adsorption Principle

设备利用吸附剂（活性氧化铝、分子筛等）在高压低温下吸附水分、低压高温下脱附水分的特性，通过双塔循环作业实现连续干燥。湿压缩空气进入吸附塔后，水分子被吸附剂表面的微孔结构捕获，干燥后的压缩空气从塔顶输出，满足工业用气需求。

The equipment utilizes the properties of adsorbents (activated alumina, molecular sieves, etc.) to adsorb moisture under high pressure and low temperature, and to desorb moisture under low pressure and high temperature, achieving continuous drying through a dual-tower circulating operation. After humid compressed air enters the adsorption tower, water molecules are captured by the microporous structure on the surface of the adsorbent, and the dried compressed air is output from the top of the tower to meet industrial gas requirements.

2. 零气耗再生流程 Zero-gas-consumption regeneration process

加热再生阶段：鼓风机抽取环境空气，经加热器升温至再生温度后送入待再生塔。热空气穿过吸附剂床层，使吸附剂温度升高，水分子获得能量从吸附剂表面脱附，随热空气一同排出塔外，完成吸附剂再生。

Heating and regeneration stage: A blower draws in ambient air, which is heated to the regeneration temperature by a heater and then sent into the regeneration tower. The hot air passes through the adsorbent bed, raising the temperature of the adsorbent. Water molecules gain energy and desorb from the surface of the adsorbent, exiting the tower with the hot air, thus completing the adsorbent regeneration.

循环冷吹阶段：加热器停止工作，鼓风机继续输送环境空气，通过冷却器降温后进入再生塔，对吸附剂进行冷却，使其恢复吸附活性。冷吹过程中产生的冷凝水经气液分离器排出，确保吸附剂干燥度。

Cold blowing stage: The heater stops working, and the blower continues to supply ambient air. After being cooled by the cooler, the air enters the regeneration tower to cool the adsorbent and restore its adsorption activity. The condensate generated during the cold blowing process is discharged through the gas-liquid separator to ensure the dryness of the adsorbent.

双塔切换阶段：当吸附塔内吸附剂达到饱和状态、再生塔完成冷吹后，控制系统自动切换阀门，原吸附塔转入再生流程，原再生塔开始吸附作业，实现无间断供气。

Dual-tower switching phase: When the adsorbent in the adsorption tower reaches saturation and the regeneration tower completes cold blowing, the control system automatically switches the valves, the original adsorption tower enters the regeneration process, and the original regeneration tower begins adsorption operation, achieving uninterrupted gas supply.

特点

Features

1. 极致节能，零气耗运行 Extreme energy saving, zero gas consumption operation

再生过程完全采用环境空气，不消耗成品压缩空气，年运行成本较传统无热再生干燥机降低60%以上，为企业大幅节省能源开支，符合国家“双碳”发展战略。

The regeneration process uses ambient air entirely and does not consume compressed air from the finished product. The annual operating cost is reduced by more than 60% compared to traditional heatless regeneration dryers, which significantly saves energy expenses for enterprises and is in line with the national "dual carbon" development strategy.

2.长周期切换,性能稳定 Long-term switching, stable performance

采用4小时长周期双塔切换模式,吸附剂吸附更充分,再生更彻底,避免短周期切换导致的气流波动和露点不稳定问题,设备综合运行效率提升30%。
The system adopts a 4-hour long-cycle dual-tower switching mode, which allows for more complete adsorption and regeneration of the adsorbent, avoiding airflow fluctuations and dew point instability caused by short-cycle switching, and improving the overall operating efficiency of the equipment by 30%.

3.深度干燥,露点精准可控 Deep drying, with precise and controllable dew point.

压力露点稳定在-40°C至-70°C区间,可根据用户需求精准调节,满足精密电子制造、食品包装等对空气干燥度要求极高的场景,有效防止气动设备锈蚀、产品受潮变质。

The pressure dew point is stable in the range of -40°C to -70°C and can be precisely adjusted according to user needs. It meets the requirements of scenarios with extremely high air dryness, such as precision electronics manufacturing and food packaging, and effectively prevents pneumatic equipment from rusting and products from becoming damp and deteriorating.

4.智能管控,安全可靠 Intelligent control, safe and reliable

配备PLC智能控制系统,实时监测进出口压力、温度、露点等参数,支持远程监控与自动调节;设置多重联锁保护与报警机制,如超温报警、压力异常停机,设备无故障运行时间可达8000小时以上。

Equipped with a PLC intelligent control system, it monitors parameters such as inlet and outlet pressure, temperature, and dew point in real time, and supports remote monitoring and automatic adjustment; it is equipped with multiple interlock protection and alarm mechanisms, such as over-temperature alarm and abnormal pressure shutdown, and the equipment can operate without failure for more than 8,000 hours.

5.结构紧凑,维护便捷 Compact structure and easy maintenance

采用集成化设计,所有组件安装于带叉车槽的稳固底座上,整机出厂,现场仅需连接管道即可投入使用;吸附塔配备检修门与观察窗,吸附剂更换、设备维护简单高效,降低运维成本。

Adopting an integrated design, all components are installed on a stable base with forklift slots, and the whole machine is shipped from the factory. On-site, only the pipes need to be connected for it to be put into use. The adsorption tower is equipped with an inspection door and an observation window, making adsorbent replacement and equipment maintenance simple and efficient, reducing operation and maintenance costs.

6.适配性强,应用广泛 Highly adaptable and widely applicable

可处理流量范围覆盖1.5-300m³/min,工作压力适配0.6-1.6MPa,能与不同型号的空压机配套使用,广泛应用于冶金、电力、医药、纺织等众多行业,尤其适合连续运行、用气量大的工业场景。

It can handle flow rates ranging from 1.5 to 300 m³/min and is compatible with working pressures from 0.6 to 1.6 MPa. It can be used with different models of air compressors and is widely used in many industries such as metallurgy, power, pharmaceuticals, and textiles. It is especially suitable for industrial scenarios with continuous operation and large air consumption.

零气耗鼓风热再生吸附式干燥机参数表

Parameter table of zero-air-consumption blower heat regeneration adsorption dryer

型号 model	处理气量 Processing gas volume (m ³ /min)	工作压力 work pressure	空气接管口径 Air inlet diameter	3Ph/V/50Hz	设备尺寸 Device dimensions (mm)	重量 Weight
BLGF-20	21	0.7-1.0	DN80	380	1900*1180*2580	1390
BLGF-25	26	0.7-1.0	DN80	380	2000*1450*2600	1730
BLGF-30	32	0.7-1.0	DN100	380	2100*1570*2700	1930
BLGF-40	43	0.7-1.0	DN100	380	2200*1700*2780	2780
BLGF-50	54	0.7-1.0	DN100	380	2400*1800*2880	3200
BLGF-60	66	0.7-1.0	DN125	380	2600*1950*2950	3950
BLGF-80	85	0.7-1.0	DN150	380	2900*2200*3050	4950
BLGF-100	108	0.7-1.0	DN150	380	3200*2350*3050	6200
BLGF-120	130	0.7-1.0	DN150	380	3400*2400*3100	7400
BLGF-150	160	0.7-1.0	DN200	380	3950*2700*3300	9300
BLGF-200	210	0.7-1.0	DN200	380	4550*2980*3450	12300
BLGF-250	265	0.7-1.0	DN200	380	4950*3300*3550	15280
BLGF-300	320	0.7-1.0	DN300	380	5200*3800*3500	18000

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压缩热再生吸附式干燥机

Compression heat regeneration adsorption dryer

产品介绍

Product Introduction

压缩热微气耗再生吸附式干燥机是一种高效节能的压缩空气净化设备，它创新性地将空压机运行过程中产生的压缩热回收利用，作为吸附剂再生的核心能源，大幅降低了传统干燥设备的能耗与压缩空气损耗。该设备广泛适用于电力、钢铁、大化工、电子制造等对压缩空气干燥度要求高且用气规模大的行业，能稳定将压缩空气压力露点降至 -40°C 以下，为生产流程提供高品质的干燥气源。

The compressed heat micro gas consumption regeneration adsorption dryer is an efficient and energy-saving compressed air purification equipment. It innovatively recovers and utilizes the compressed heat generated during the operation of the air compressor as the core energy source for adsorbent regeneration, greatly reducing the energy consumption and compressed air loss of traditional drying equipment. This equipment is widely used in industries such as power, steel, large chemical, and electronic manufacturing that require high dryness of compressed air and have a large gas consumption scale. It can stably reduce the dew point of compressed air pressure to below -40°C , providing high-quality drying gas sources for the production process.



压缩热微气耗再生吸附式干燥机工作原理

Working principle of compressed heat low-gas-consumption regeneration adsorption dryer

核心原理基础

Core Principles

设备融合变压吸附与变温吸附的双重优势，利用吸附剂（如活性氧化铝、分子筛）在高压常温下吸附水分、低压高温下脱附水分的特性，实现压缩空气的深度干燥与吸附剂的循环再生。其核心创新点在于对空压机压缩热的回收利用，取代了传统设备的外部电加热或大量再生气消耗。

The equipment combines the advantages of pressure swing adsorption (PSA) and temperature swing adsorption (TSA), utilizing the properties of adsorbents (such as activated alumina and molecular sieves) to adsorb moisture under high pressure and normal temperature, and desorb moisture under low pressure and high temperature, thus achieving deep drying of compressed air and recycling of the adsorbent. Its core innovation lies in the recovery and utilization of the air compressor's compression heat, replacing the external electric heating or large consumption of regeneration gas required by traditional equipment.

完整工作流程

Complete Workflow

吸附阶段：湿压缩空气进入吸附塔，在高压常温环境下，空气中的水分子被塔内吸附剂的多孔结构捕获，干燥后的压缩空气从塔顶输出，进入用气系统。此时另一塔处于再生准备状态。

Adsorption stage: Wet compressed air enters the adsorption tower. Under high pressure and normal temperature, water molecules in the air are captured by the porous structure of the adsorbent inside the tower. The dried compressed air is then output from the top of the tower and enters the gas consumption system. At this time, another tower is in the regeneration preparation state.

再生加热阶段：空压机排出的高温压缩空气（温度可达 $110-160^{\circ}\text{C}$ ）被引入饱和吸附塔，高温气流携带的热量使吸附剂温度升高，吸附的水分子获得能量后从吸附剂表面脱附，实现吸附剂的再生。这一过程无需额外电加热，完全依靠回收的压缩热完成，且几乎不消耗成品干燥空气。

Regeneration heating stage: High-temperature compressed air (temperature can reach $110-160^{\circ}\text{C}$) discharged from the air compressor is introduced into the saturated adsorption tower. The heat carried by the high-temperature airflow raises the temperature of the adsorbent. The adsorbed water molecules gain energy and desorb from the surface of the adsorbent, thus regenerating the adsorbent. This process does not require additional electric heating, relies entirely on the recovered heat of compression, and consumes almost no finished dry air.

冷吹阶段：当吸附剂再生完成后，系统切换为冷吹模式。经过初步冷却和分离处理的压缩空气通入再生塔，将吸附剂温度降至接近常温，为下一次吸附循环做好准备，同时进一步带出塔内残余的湿空气。

Cold blowing stage: After the adsorbent regeneration is completed, the system switches to cold blowing mode. Compressed air that has undergone preliminary cooling and separation treatment is introduced into the regeneration tower to lower the adsorbent temperature to near room temperature, preparing it for the next adsorption cycle, while also further removing residual humid air from the tower.

均压切换阶段:冷吹结束后,再生塔与吸附塔通过均压阀实现压力平衡,随后系统自动切换两塔的工作状态,原本的再生塔转为吸附模式,吸附塔进入再生流程,如此循环往复,确保连续不断地输出干燥压缩空气。

Pressure equalization switching stage: After the cold blowing is completed, the regeneration tower and the adsorption tower achieve pressure balance through the pressure equalization valve. Then the system automatically switches the working state of the two towers. The original regeneration tower switches to adsorption mode, and the adsorption tower enters the regeneration process. This cycle repeats to ensure a continuous output of dry compressed air.

特点 Features

一:极致节能,运行成本低

Extremely energy-efficient with low operating costs

热能回收再利用:直接回收空压机压缩过程中产生的余热,替代传统微热干燥机的电加热装置,可减少90%以上的加热能耗,年节电可达数万度。

Heat energy recovery and reuse: It directly recovers the waste heat generated during the air compressor compression process, replacing the electric heating device of the traditional micro-heat dryer, which can reduce heating energy consumption by more than 90% and save tens of thousands of kilowatt-hours of electricity per year.

微气耗:再生过程无需抽取大量成品干燥空气作为再生气,仅在冷吹阶段消耗少量压缩空气,相比无热再生干燥机,可节省80%以上的压缩空气损耗,大幅降低空压机的负载与运行成本。

Low or even zero air consumption: The regeneration process does not require the extraction of a large amount of finished product dry air as regeneration gas. Only a small amount of compressed air is consumed in the cold blowing stage. Compared with heatless regeneration dryers, it can save more than 80% of compressed air loss, which greatly reduces the load and operating cost of air compressors.

二:干燥效果稳定可靠

Stable and reliable drying effect

深度干燥能力:采用高性能活性氧化铝与分子筛复合吸附剂,配合双塔交替工作模式,能稳定将成品气露点控制在-40°C以下,部分定制机型可达到-70°C,满足精密电子、医药食品等行业的严苛要求。

Deep drying capability: Using high-performance activated alumina and molecular sieve composite adsorbent, combined with a dual-tower alternating working mode, it can stably control the compressed air pressure dew point below -40°C, and some high-end models can reach -70°C, meeting the stringent requirements of industries such as precision electronics, pharmaceuticals and food.

气流分布优化:塔内配备不锈钢气流扩散器,确保压缩空气均匀流过吸附剂床层,避免出现沟流现象,使吸附剂与空气充分接触,提升干燥效率与效果的一致性。

Optimized airflow distribution: The tower is equipped with a stainless steel airflow diffuser to ensure that compressed air flows evenly through the adsorbent bed, avoids channeling, and allows the adsorbent to fully contact the air, thereby improving the consistency of drying efficiency and effect.

三:运行维护便捷

Easy to operate and maintain

自动化智能控制:搭载PLC智能控制系统,可自动完成吸附、再生、冷吹、切换等全流程操作,实时监测露点、温度、压力等关键参数,具备故障报警与远程监控功能,减少人工干预。

Automated intelligent control: Equipped with a PLC intelligent control system, it can automatically complete the entire process of adsorption, regeneration, cold blowing, and switching, and monitor key parameters such as dew point, temperature, and pressure in real time. It has fault alarm and remote monitoring functions to reduce manual intervention.

吸附剂寿命长:合理的气流设计与温和的再生方式,降低了吸附剂的机械磨损与热损伤,配合前置精密除油器(控制进气含油量 $\leq 0.01\text{mg}/\text{m}^3$),吸附剂使用寿命可达3-5年,减少更换成本与停机时间。

Long adsorbent life: The reasonable airflow design and gentle regeneration method reduce the mechanical wear and thermal damage of the adsorbent. With the pre-precision oil remover (controlling the oil content of the intake air to $\leq 0.01\text{mg}/\text{m}^3$), the adsorbent life can reach 3-5 years, reducing replacement costs and downtime.

结构设计人性化:采用模块化组装结构,吸附塔、阀门组、控制系统等部件便于拆卸与维护;配备高效消声器,降低再生排气噪音,改善车间工作环境。

Human-centered structural design: The modular assembly structure makes it easy to disassemble and maintain components such as the adsorption tower, valve group, and control system; it is equipped with a high-efficiency silencer to reduce regeneration exhaust noise and improve the workshop working environment.

四: 适配性与扩展性强 Highly adaptable and scalable

宽工况适应: 可适应进气压力0.7-1.0MPa、进气温度110-160°C的复杂工况, 当工况参数波动时, 系统可自动调整运行参数, 保证干燥效果稳定。

Wide operating condition adaptability: It can adapt to complex operating conditions with inlet pressure of 0.7-1.0MPa and inlet temperature of 110-160°C. When the operating parameters fluctuate, the system can automatically adjust the operating parameters to ensure stable drying effect.

定制化配置: 可根据用户用气规模与干燥需求, 定制不同处理量的机型, 还可选配露点在线监测仪、数据采集系统等扩展组件, 满足个性化生产需求。

Customized configuration: Models with different processing capacities can be customized according to the user's gas consumption scale and drying needs. Optional expansion components such as online dew point monitors and data acquisition systems can also be added to meet personalized production needs.

工况条件与技术指标

Operating conditions and technical specifications

进气温度 Intake temperature	110~160°C
进气压力 Intake pressure	0.7~1.0Mpa
平均再生耗气量 Average regeneration gas consumption	≤2%
压力损耗 Pressure loss	≤进气压力的3% ≤3% of intake pressure
进气含油量 Intake air oil content	≤0.1PPM
成品气露点 Pressure dew point	标准型-40°C Standard type -40°C
冷却水进水温度 Cooling water inlet temperature	≤32°C
冷却水进水压力 Cooling water inlet pressure	0.2~0.4Mpa
冷却水 Cooling water	工业循环水 Industrial circulating water
工作方式 working methods	两吸附塔交替连续环工作 The two adsorption towers operate in alternating continuous loops.
控制方式 Control method	PLC控制 PLC control
再生方式 Regeneration method	压缩热再生 Compression thermal regeneration
周期 cycle	T=8(h)
安装方式 Installation method	室内, 无基础安装 Indoor installation without foundation

压缩热微气耗再生吸附式干燥机参数表

Parameter table of compressed heat low gas consumption regeneration adsorption dryer

型号 model	处理气量 Processing gas volume (m ³ /min)	工作压力 work pressure	空气接管口径 Air inlet diameter	功率 Power KW	设备电源 Equipment power supply	设备尺寸 Device dimensions (mm)	设备重量 Equipment weight (KG)
BLYR-40	43	0.6-1.0	DN100	1	220V	2400*1600*2750	2300
BLYR-50	55	0.6-1.0	DN100	1	220V	2600*1650*2820	2950
BLYR-60	63	0.6-1.0	DN125	1	220V	2900*1860*2850	3400
BLYR-80	90	0.6-1.0	DN150	1	220V	3150*2050*3980	4860
BLYR-100	110	0.6-1.0	DN150	1	220V	3250*2300*3050	5950
BLYR-120	130	0.6-1.0	DN150	1	220V	3500*2550*3100	7050
BLYR-150	160	0.6-1.0	DN200	1	220V	3800*2750*3300	8650
BLYR-200	210	0.6-1.0	DN200	1	220V	4600*3200*3360	11300
BLYR-250	260	0.6-1.0	DN200	1	220V	4850*3200*3460	14500
BLYR-300	320	0.6-1.0	DN250	1	220V	5100*3500*3560	17280

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压缩热零气耗再生吸附式干燥机

Zero-air-consumption regenerative adsorption dryer

产品介绍

Product Introduction

压缩热零气耗再生吸附式干燥机是一款基于变温吸附原理研发的高效能型压缩空气干燥设备，核心优势在于充分回收空压机排气过程中产生的高温余热，实现吸附剂的无气耗再生，彻底解决传统干燥机再生气损耗大、能耗高的痛点。该设备可将压缩空气压力露点稳定控制在 -20°C 至 -40°C 以下，广泛适用于钢铁、化工、电力、制药等对压缩空气干燥度要求高且能耗控制严格的行业，是工业领域实现“双碳”目标的关键节能装备之一。

The zero-air-consumption regeneration adsorption dryer is a high-efficiency and energy-saving compressed air drying equipment developed based on the principle of temperature-variable adsorption. Its core advantage lies in fully recovering the high-temperature waste heat generated during the air compressor's exhaust process, achieving zero-air-consumption regeneration of the adsorbent and completely solving the pain points of high regeneration gas loss and high energy consumption in traditional dryers. This equipment can stably control the compressed air pressure dew point between -20°C and -40°C , and is widely applicable to industries such as steel, chemical, power, and pharmaceutical, which have high requirements for compressed air dryness and strict energy consumption control. It is one of the key energy-saving equipment for achieving "dual carbon" targets in the industrial field.



压缩热零气耗再生吸附式干燥机原理

Principle of zero-air-consumption regenerative adsorption dryer

设备采用双塔循环工作模式，通过吸附、加热再生、冷吹三个阶段的自动切换，持续输出干燥压缩空气，核心流程如下：

The equipment adopts a dual-tower circulating working mode, and continuously outputs dry compressed air through automatic switching of three stages: adsorption, heating regeneration, and cold blowing. The core process is as follows:

吸附阶段：湿压缩空气进入吸附塔，在活性氧化铝或分子筛等吸附剂的作用下，水分子被吸附在吸附剂孔隙内，干燥后的压缩空气从塔顶输出，满足工业用气需求。此时另一塔处于再生准备状态。

Adsorption stage: Wet compressed air enters the adsorption tower. Under the action of adsorbents such as activated alumina or molecular sieves, water molecules are adsorbed into the pores of the adsorbent. The dried compressed air is output from the top of the tower to meet industrial gas requirements. At this time, another tower is in the regeneration preparation state.

加热再生阶段：空压机排出的高温压缩空气（温度 $\geq 100^{\circ}\text{C}$ ）直接导入已饱和的再生塔，利用余热加热吸附剂。吸附剂温度升高后，吸附的水分子获得能量脱附，随湿热空气进入冷却器降温，冷凝水经疏水器排出，实现吸附剂的脱水再生。此过程无需消耗成品压缩空气，真正达到“零气耗”。

Heating and regeneration stage: High-temperature compressed air ($\geq 100^{\circ}\text{C}$) discharged from the air compressor is directly introduced into the saturated regeneration tower, using waste heat to heat the adsorbent. After the adsorbent temperature rises, the adsorbed water molecules gain energy to desorb and enter the cooler with the hot and humid air to cool down. The condensate is discharged through the condensate drain, realizing the dehydration and regeneration of the adsorbent. This process does not consume finished compressed air, truly achieving "zero air consumption".

冷吹阶段：加热再生完成后，系统切换为冷吹模式，少量干燥压缩空气进入再生塔，将吸附剂冷却至常温，恢复其吸附能力。冷吹完成后，两塔自动切换角色，进入下一个循环周期，整个过程由PLC智能控制系统自动完成，循环周期通常为4-8小时。

Cold blowing stage: After heating regeneration is completed, the system switches to cold blowing mode. A small amount of dry compressed air enters the regeneration tower to cool the adsorbent to room temperature and restore its adsorption capacity. After cold blowing is completed, the two towers automatically switch roles and enter the next cycle. The entire process is automatically completed by the PLC intelligent control system, and the cycle time is usually 4-8 hours.

特点 Features

极致节能, 运行成本低:充分回收空压机余热, 无需额外电加热或消耗再生气, 综合能耗较传统微热再生干燥机降低70%以上, 年运行成本可节省数十万元。

Extremely energy-efficient and low operating costs: It fully recovers the waste heat of the air compressor, eliminating the need for additional electric heating or regeneration gas consumption. The overall energy consumption is reduced by more than 70% compared to traditional micro-heat regeneration dryers, saving hundreds of thousands of yuan in annual operating costs.

露点稳定, 用气品质高:采用专用高吸湿性吸附剂, 配合均匀气流分配设计, 可确保压缩空气压力露点稳定在-40°C以下, 满足制药、电子等行业对高洁净、低湿度用气的严格要求, 有效避免因空气含水导致的设备腐蚀、产品质量下降等问题。

Stable dew point and high-quality air: Using a special highly hygroscopic adsorbent and a uniform airflow distribution design, the compressed air pressure dew point can be kept stable below -40°C, meeting the strict requirements of the pharmaceutical, electronics and other industries for high-cleanliness and low-humidity air, and effectively avoiding problems such as equipment corrosion and product quality degradation caused by moisture in the air.

智能控制, 运维简便:配备进口品牌PLC控制器与触摸屏, 可实时监测露点、温度、压力等关键参数, 自动调整再生周期, 支持远程监控与故障预警。日常维护仅需每季度清洁前置过滤器, 吸附剂寿命可达3-5年, 大幅降低运维工作量。

Intelligent control and simplified operation and maintenance: Equipped with an imported brand PLC controller and touch screen, it can monitor key parameters such as dew point, temperature, and pressure in real time, automatically adjust the regeneration cycle, and support remote monitoring and fault early warning. Routine maintenance only requires cleaning the pre-filter quarterly, and the adsorbent life can reach 3-5 years, significantly reducing the workload of operation and maintenance.

绿色环保, 符合双碳标准:无电加热再生环节, 无油设计符合ISO 8573 Class 0无油标准, 运行过程中无额外碳排放, 助力企业打造绿色工厂, 符合国家“双碳”发展战略。

Green and environmentally friendly, meeting dual carbon standards: no electric heating regeneration process, oil-free design meets ISO 8573 Class 0 oil-free standard, no additional carbon emissions during operation, helping enterprises build green factories, in line with the national "dual carbon" development strategy.

压缩热零气耗再生吸附式干燥机参数表

Parameter table of zero-air-consumption regenerative adsorption dryer

型号 model	处理气量 Processing gas volume	工作压力 work pressure	空气接管口径 Air inlet diameter	功率 Power KW	设备电源 Equipment Power Supply	设备尺寸 Device dimensions (mm)	重量 weight
BLYR-40	43	0.6-1.0	DN100	1	220V	2400*1600*2750	2790
BLYR-50	55	0.6-1.0	DN100	1	220V	2600*1650*2820	3480
BLYR-60	63	0.6-1.0	DN125	1	220V	2900*1860*2850	3780
BLYR-80	90	0.6-1.0	DN150	1	220V	3150*2050*3980	5650
BLYR-100	110	0.6-1.0	DN150	1	220V	3250*2300*3050	6950
BLYR-120	130	0.6-1.0	DN150	1	220V	3500*2550*3100	8200
BLYR-150	160	0.6-1.0	DN200	1	220V	3800*2750*3300	10300
BLYR-200	210	0.6-1.0	DN200	1	220V	4600*3200*3360	13200
BLYR-250	260	0.6-1.0	DN200	1	220V	4850*3200*3460	16380
BLYR-300	320	0.6-1.0	DN250	1	220V	5100*3500*3560	19500

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压缩空气预冷机

Compressed air precooler

产品介绍

Product Introduction

空分预冷机是通过制冷循环原理，将高温的压缩空气降温，并除去冷凝水，为用户提供干燥低温的压缩空气，产品主要用于空分对压缩空气有低温要求的工艺。

Air separation precoolers use the principle of refrigeration cycle to cool down high-temperature compressed air and remove condensate, providing users with dry, low-temperature compressed air. The product is mainly used in air separation processes that require low-temperature compressed air.

产品特点

Features

制冷系统采用进口知名品牌压缩机，具有制冷性能稳定、能效比高、运行噪音小等特点。

The refrigeration system uses imported compressors from well-known brands, which are characterized by stable refrigeration performance, high energy efficiency, and low operating noise.

自动化控制、结构紧凑、机箱美观、无基础安装。

Automated control, compact structure, aesthetically pleasing chassis, and foundation-free installation.



工况条件与技术指标

Operating conditions and technical specifications

气体入口压力 Gas inlet pressure	0.4-1.0Mpa
气体入口温度 Gas inlet temperature	≤40°C
气体出口温度 Gas outlet temperature	5-10°C
压力损失 Pressure loss	0.01-0.015Mpa
制冷剂 refrigerant	R22 (R410)
工作电压 Operating voltage	220V/380V
冷却水温 Cooling water temperature	≤32°C
进水压力 Inlet water pressure	0.2-0.4Mpa

压缩空气预冷机的参数表

Parameter table of compressed air precooler

型号 model	空分型号 Air separation model	工作压力 work pressure (Mpa)	成品气干燥度 Drying degree of finished gas	制冷剂 Refrigerant	电源电压 Voltage 3Ph/V/50Hz	功率 KW	制冷压缩机功率 refrigeration capacity	空气出 入口管径 Air inlet diameter	冷却水 Cooling water	水冷凝器管径 Diameter of water-cooled condenser
BLAY-10	50/25	0.4-1.0 Mpa	压力露点 2-10°C (水分含量 0.6-1.4g/m ³)	R22/R410	380V	3	6930	DN80	温度 ≤32°C 压力 0.2- 0.4Mpa	G1"牙
BLAY-20	80/40					5	13000	DN80		
BLAY-30	180/100					7.5	19500	DN100		G1/2"内牙
BLAY-40	240/150					10	25620	DN125		
BLAY-50	300/600					12	31000	DN125		
BLAY-60	300/600					15	36280	DN125		
BLAY-80	500/1000					20	51240	DN150		
BLAY-120	750/1500					25	65000	DN150		G2"内牙
BLAY-150	800/1600					35	93000	DN200		
BLAY-200	1200/2500					50	124000	DN200		DN100

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无动力节能干燥机

Non powered energy-saving dryer

无动力节能干燥机工作原理

Working principle of non powered energy-saving dryer

压缩空气由储气罐进入超冷却器，高温高湿的压缩空气在超冷却器中与冷却铜管中的冷却水进行冷热交换，压缩空气在冷热交换过程中降低温度并结露，结露的气态水液化经过排污口进入排水器集中排放。冷却后的带有一定含量水分的压缩空气流入旋风式气液分离器，气液分离器将其含有的水分进行分离，分离后的水进入储水器准备集中排放。经分离的压缩空气进入前置过滤器，对压缩空气残留的水分、粉尘、油污等杂质进行过波净化。经外理的压缩空气讲入后置过滤器，对水分，粉尘，油污等杂质进行二次过滤净化，从而得到净化空气，净化后的压缩空气流向生产车间，超冷却器，过滤器，分离器产生的冷凝水集中进入到储水器后经过电子式液位零气耗排水器排出，在这个净化过程中压缩空气零气耗。



Compressed air enters the supercooler from the air storage tank. The high-temperature and high humidity compressed air exchanges heat and cold with the cooling water in the cooling copper tube in the supercooler. During the heat and cold exchange process, the compressed air lowers its temperature and condenses. The condensed gaseous water liquefies and enters the drain through the discharge outlet for centralized discharge. The cooled compressed air with a certain amount of moisture flows into the cyclone gas-liquid separator, which separates the moisture it contains. The separated water enters the water storage tank for centralized discharge. The separated compressed air enters the pre filter to purify the residual moisture, dust, oil and other impurities in the compressed air through wave filtration. The compressed air processed externally is sent to a post filter for secondary filtration and purification of impurities such as moisture, dust, and oil, thereby obtaining purified air. The purified compressed air flows to the production workshop, where the condensed water generated by the subcooler, filter, and separator is concentrated in the water storage tank and discharged through an electronic liquid level zero gas consumption drain. During this purification process, the compressed air has zero gas consumption.

常规无动力节能干燥机产品特点

Characteristics of Conventional Non powered Energy saving Drying Machine Products

博菱常规系列无动力节能干燥机以紫铜管作为超冷却器的冷却管，冷却管结构采用新颖的带翅式管束结构。相同尺寸情况下，带翅式管束结构的紫铜管的换热面积是光管结构的换热面积的3.39倍。

The Boling conventional series non powered energy-saving dryer uses copper tubes as the cooling pipes for the supercooler, and the cooling pipe structure adopts a novel finned tube bundle structure. Under the same size, the heat transfer area of the copper tube with a finned tube bundle structure is 3.39 times that of the light tube structure.

工况条件与技术指标

Operating conditions and technical specifications

进气温度	Air intake scheduling	≤75°C
环境温度	Ambient temperature	≤40°C
成品气干燥度	Drying degree of finished gas	压力露点2-10°C Pressure dew point 2-10 °C
压力损耗	pressure loss	≤0.02kg
整机功率	Total machine power	100W
冷却水温度	cooling water temperature	≤32°C
安装方式	Installation method	室内无基础安装 Indoor installation without foundation

常规无动力节能干燥机

Conventional non powered energy-saving dryer

型号 model	处理气量 Processing gas volume (m ³ /min)	冷却水口 Cooling water diameter (DN)	空气接口 Air inlet diameter (DN)	设备尺寸 Device dimensions (mm)
BLSD-30	30	50	100	2400*750*1600
BLSD-40	40	50	100	2600*750*1600
BLSD-60	60	65	125	2900*900*1985
BLSD-80	80	65	150	2900*900*1990
BLSD-100	100	65	150	2685*950*2000
BLSD-120	120	65	150	2885*950*2000
BLSD-150	150	65	200	3000*1200*2080
BLSD-200	200	80	200	3500*1200*2120
BLSD-250	250	80	200	3600*1400*2110
BLSD-300	300	80	300	3700*1550*2230
BLSD-350	350	100	300	3700*1550*2230
BLSD-400	400	100	300	3900*1550*2402
BLSD-500	500	100	300	4200*1700*2217
BLSD-600	600	125	300	4300*1850*2250
BLSD-700	700	125	350	4500*2050*2487
BLSD-800	800	125	400	4850*2100*2540

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回温无动力节能干燥机

Regenerated non powered energy-saving dryer

回温无动力节能干燥机产品特点

Product features of regenerative non powered energy-saving dryer

博菱回热系列无动力节能干燥机配备有换热器，将净化后的冷空气与空压机出来的热空气进行热交换，满足特殊行业对净化后的压缩空气加热要求。对于净化后的压缩空气有温度要求的用户，可选择可调节系列的回热型水动节能干燥机。可调节系列水动节能干燥机采用可调节温度旁通阀，通过0-100%的开启度调节温度旁通阀，得到需求温度的净化压缩空气。

The Boling Regenerative Series Non Power Energy saving Drying Machine is equipped with a heat exchanger, which exchanges heat between the purified cold air and the hot air from the air compressor, meeting the heating requirements of special industries for purified compressed air. For users who have temperature requirements for purified compressed air, they can choose the adjustable series of regenerative water powered energy-saving dryers. The adjustable series water powered energy-saving dryer adopts an adjustable temperature bypass valve, which adjusts the temperature bypass valve through 0-100% opening degree to obtain purified compressed air at the required temperature.



工况条件与技术指标

Operating conditions and technical specifications

进气温度	Air intake scheduling		≤75°C
环境温度	Ambient temperature		≤40°C
成品气干燥度	Drying degree of finished gas	压力露点2-10°C	Pressure dew point 2-10 °C
压力损耗	pressure loss		≤0.02kg
整机功率	Total machine power		100W
冷却水温度	cooling water temperature		≤32°C
安装方式	Installation method	室内无基础安装	Indoor installation without foundation

回温无动力节能干燥机

Regenerated non powered energy-saving dryer

型号 model	处理气量 Processing gas volume (m ³ /min)	冷却水口 Cooling water diameter (DN)	空气接口 Air inlet diameter (DN)	设备尺寸 Device dimensions (mm)
BLSD-60H	60	65	125	2660*980*1990
BLSD-80H	80	65	150	2660*980*2000
BLSD-100H	100	65	150	2920*1050*2052
BLSD-120H	120	65	150	2920*1050*2052
BLSD-150H	150	65	200	2950*1200*2160
BLSD-200H	200	80	200	3600*1200*2200
BLSD-250H	250	80	200	3660*1350*2400
BLSD-300H	300	100	300	3760*1500*2380
BLSD-350H	350	100	300	3960*1500*2380
BLSD-400H	400	100	300	4130*1750*2460
BLSD-450H	450	125	300	4150*1750*2840
BLSD-500H	500	125	300	4450*1850*2940
BLSD-600H	600	125	350	4600*1850*2980

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混动式无动力节能干燥机

Hybrid non-powered energy-saving dryer

产品介绍

Product Introduction

混动式无动力节能干燥机是博菱公司针对纺织、化纤行业专门开发的节能型压缩空气后处理设备。该机型采用独特的水动换热技术，利用循环水作为冷却介质对压缩空气进行降温干燥，干燥过程中无电力驱动，压缩空气零损耗，真正实现了高效节能的目的。

The hybrid zero-power energy-saving dryer is an energy-efficient compressed air post-treatment equipment developed by Boling Company specifically for textile and chemical fiber industries. This model adopts unique water-driven heat exchange technology, using circulating water as cooling medium to cool and dry compressed air. During the drying process, there is no electric drive and zero compressed air loss, truly achieving the purpose of high-efficiency energy saving.

设备采用新颖的带翅式紫铜管束结构，换热效率高，工作基本不受环境温度影响，尤其适宜高温高湿的重尘环境使用。配套智能电控系统，集成了循环水泵和冷却塔的一体化控制，可自动检测进出水和进出气的温度，确保高温高湿度压缩空气能有效降温并达到预期的干燥效果。

The equipment adopts a novel finned copper tube bundle structure with high heat exchange efficiency, and its operation is basically not affected by ambient temperature, especially suitable for high temperature, high humidity and heavy dust environments. The supporting intelligent electronic control system integrates the integrated control of circulating water pump and cooling tower, which can automatically detect the temperature of inlet/outlet water and air, ensuring effective cooling and achieving expected drying effects for high temperature and high humidity compressed air.



混动式无动力干燥机工作原理

Working principle of hybrid non-powered dryer

混动式无动力节能干燥机利用水循环冷却系统对压缩空气进行降温干燥，其工作过程如下：

The hybrid, non-powered energy-saving dryer utilizes a water-circulating cooling system to cool and dry compressed air. Its working process is as follows:

1. 超冷却阶段：压缩空气由储气罐进入超冷却器（换热器），在冷却过程中，高温气体与循环水进行热交换，温度迅速降低。在这个过程中，压缩空气中的气态水凝结成液态水，经排污口进入储水器集中排放。

1. Supercooling Stage: Compressed air enters the supercooler (heat exchanger) from the air tank. During the cooling process, the high-temperature gas exchanges heat with the circulating water, causing the temperature to drop rapidly. In this process, the gaseous water in the compressed air condenses into liquid water, which is discharged into the water storage tank through the drain port.

2. 气液分离阶段：冷却后的压缩空气仍带有一定含量的水分，流入高效气液分离器进行分离。分离出的液态水进入储水器集中排放。

2. Gas-Liquid Separation Stage: The cooled compressed air still contains a certain amount of moisture and flows into a high-efficiency gas-liquid separator for separation. The separated liquid water enters the water storage tank for centralized discharge.

3. 精密过滤阶段：经分离后的压缩空气再经过两个超精密过滤器进行深度净化，去除残余的水分、油雾及固体颗粒物，从而得到高品质的干燥压缩空气。

3. Precision Filtration Stage: The separated compressed air then passes through two ultra-precision filters for deep purification, removing residual moisture, oil mist, and solid particles, thus obtaining high-quality dried compressed air.

4. 排水排放阶段：超冷却器、过滤器和分离器产生的冷凝水集中进入储水器后，经过电子式液位零气损排水器自动排出。整个净化过程中压缩空气零损耗、零排放。

4. Drainage and Discharge Stage: The condensate generated by the supercooler, filters, and separator enters the water storage tank and is automatically discharged through an electronic zero-loss liquid level drain. The entire purification process involves zero compressed air loss and zero emissions.

5. 混动辅助机制：当环境温度较高或气负荷较大时，系统自动启动混动辅助制冷模块（制冷压缩机），配合水循环系统实现双重冷却，确保露点稳定。低温季节或低负荷时，仅靠水循环即可满足干燥需求，制冷系统自动休眠，最大限度节约能耗。

5. Hybrid Auxiliary Mechanism: When the ambient temperature is high or the gas load is large, the system automatically starts the hybrid auxiliary refrigeration module (refrigeration compressor), working in conjunction with the water circulation system to achieve dual cooling and ensure stable dew point. During low-temperature seasons or low-load conditions, water circulation alone can meet the drying requirements, and the refrigeration system automatically enters sleep mode, maximizing energy savings.

混动式无动力干燥机特点

Features of Hybrid Non-Powered Dryer

1、真正的零功耗干燥 True zero-power drying

• 核心干燥过程无需电力驱动，利用水循环实现自然冷却

The core drying process requires no electricity and utilizes water circulation for natural cooling.

• 全程压缩空气零损耗、零排放，不消耗任何成品气

The entire process involves zero loss and zero emissions of compressed air, and consumes no finished product air.

• 压力损失极低（ $\leq 0.02\text{kg}$ ），有效降低系统能耗

Extremely low pressure loss ($\leq 0.02\text{kg}$), effectively reducing system energy consumption.

2、超强环境适应性 Superior environmental adaptability

- 以循环水作为冷却介质, 工作不受环境温度限制
Using circulating water as the cooling medium, its operation is not limited by ambient temperature.
- 特别适用于高温、高湿、重尘等恶劣工况环境
Especially suitable for harsh working environments such as high temperature, high humidity, and heavy dust.
- 无论冬夏, 均能稳定输出符合要求的干燥压缩空气
Regardless of winter or summer, it can stably output dry compressed air that meets the requirements.

3、高效换热设计 High-efficiency heat exchange design

- 采用新颖的带翅式紫铜管束结构, 换热面积大、效率高
It adopts a novel finned copper tube bundle structure, which has a large heat exchange area and high efficiency.
- 三次冷却一次升温的独特流程设计, 确保最佳干燥效果
A unique process design with three cooling cycles and one heating cycle ensures optimal drying results.
- 出气绝对含水量和相对湿度均达到极低水平
The absolute moisture content and relative humidity of the exhaust gas both reached extremely low levels.

4、智能混动控制 Intelligent Hybrid Control

- 智能电控系统集成循环水泵和冷却塔一体化控制
The intelligent electronic control system integrates the control of circulating water pumps and cooling towers.
- 自动检测进出水、进出气温度, 实时调节运行参数
Automatically detects inlet and outlet water and air temperatures, and adjusts operating parameters in real time.
- 根据环境变化自动调节水温、气温, 露点稳定可控
Automatically adjusts water and air temperature according to environmental changes, ensuring stable and controllable dew point.
- 高温季节自动启用辅助制冷, 低温季节自动节能运行
Automatically activates auxiliary cooling during hot seasons and automatically operates in energy-saving mode during cold seasons.

5、可靠耐用易维护 Reliable, durable and easy to maintain

- 内部换热管采用不锈钢材质, 耐腐蚀、使用寿命长
The internal heat exchange tubes are made of stainless steel, which is corrosion-resistant and has a long service life.
- 设备整体可拆卸设计, 便于清洗和维护保养
The equipment features a fully detachable design, facilitating cleaning and maintenance.
- 故障率低, 运行稳定可靠, 维护成本低
Low failure rate, stable and reliable operation, and low maintenance cost.

6、应用行业广泛 Wide range of applications

- 纺织行业: 喷气织机、纺纱、印染等需要无水压缩空气的工艺
Textile industry: Processes requiring waterless compressed air, such as air-jet looms, spinning, and dyeing.
- 化纤行业: 涤纶、锦纶、腈纶等化纤生产的配套设备
Chemical fiber industry: Supporting equipment for the production of polyester, nylon, acrylic and other chemical fibers
- 适用于各类有高温高压压缩空气干燥需求的工业场景
Suitable for various industrial scenarios requiring high-temperature and high-pressure compressed air drying.

工况条件与技术指标

Operating conditions and technical specifications

适用行业	Applicable industries	纺织、化纤	Textiles and chemical fibers
冷却方式	Cooling method	水循环冷却+混动辅助制冷	Water circulation cooling + hybrid auxiliary refrigeration
处理气量	Processing gas volume	根据型号定制 (20~500m ³ /min)	Customized according to model (20~500m ³ /min)
进气温度	Intake temperature		≤80°C
工作压力	Work pressure		0.2~1.0MPa
压力损失	Pressure loss		≤0.1kg
露点温度	Dew point temperature		10~30°C
排水方式	Drainage method	电子式自动排水	Electronic liquid level zero-gas loss automatic drainage

混动式无动力干燥机参数表

Hybrid Non-Powered Dryer Parameter Table

型号 model	处理气量 Processing gas volume (m ³ /min)	冷却水口 Cooling water diameter (DN)	空气接口 Air inlet diameter (DN)	设备尺寸 Device dimensions (mm)	电压 Voltage
BLZH-80D	81	DN65	DN150	2700*1250*1820	380V50HZ
BLZH-100	105	DN65	DN150	2850*1250*1920	
BLZH-120	123	DN65	DN150	2950*1300*1920	
BLZH-150	158	DN80	DN200	3250*1500*2050	
BLZH-200	210	DN80	DN200	3800*1500*2050	
BLZH-260	270	DN80	DN250	3350*1750*2230	
BLZH-300	315	DN80	DN300	3950*1750*2230	
BLZH-350	360	DN100	DN300	4150*1750*2230	
BLZH-400	420	DN100	DN300	4300*1850*2590	
BLZH-500	520	DN100	DN300	4500*1950*2650	
BLZH-600	630	DN125	DN300	4800*1950*2650	
BLZH-700	715	DN125	DN350	4500*2050*2754	
BLZH-800	850	DN125	DN350	4600*2200*2750	
BLZH-1000	1100	DN150	DN400	5000*2100*2830	
BLZH-1200	1200	DN200	DN400	5300*2400*2850	
BLZH-1500	1500	DN200	DN500	5700*2600*2950	

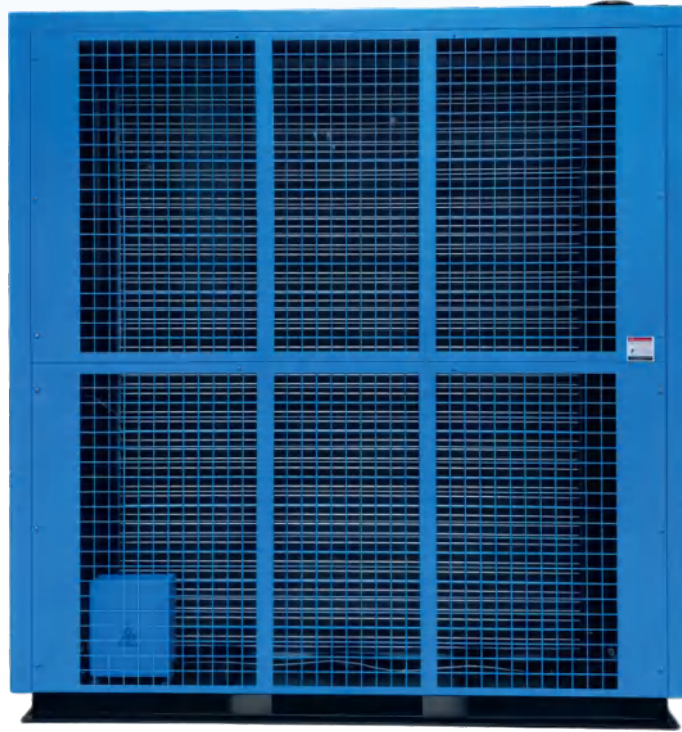
注明:本表设备处理气量为设备在额定工作压力 0.8MPa 工况下的额定处理量,实际处理气量会随工作压力变化而改变。
Note: The gas processing volume in this table is rated at the working pressure of 0.8MPa. The actual gas processing volume varies with the working pressure.

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风冷型后部冷却器

Air-cooled aftercooler



产品简介 Product Brief

风冷型后部冷却器，是利用自然空气做介质，对压缩空气进行冷却的空气压缩机配套设备，具有体积小，冷却效率高等特点，适用于重尘、高温、高湿没有经济型水源的地区使用。是空压机的重要配套设备，能将空压机产生的高温压缩空气冷却到后处理设备许可的运行温度，同时排出凝结水。

An air-cooled aftercooler is an auxiliary device for air compressors that uses natural air as the medium to cool compressed air. It features small size and high cooling efficiency, and is suitable for use in areas with heavy dust, high temperature, high humidity, and no economical water source. It is an important auxiliary device for air compressors, cooling the high-temperature compressed air generated by the air compressor to the permissible operating temperature of the after-treatment equipment, while simultaneously discharging condensate.

风冷型后部冷却器具有安装方便，维护成本低的特点，适用于无冷却水、环境温度不高的场所。

Air-cooled aftercoolers are easy to install and have low maintenance costs, making them suitable for locations without cooling water or where the ambient temperature is not high.

产品特点 Features

常规产品可根据客户安装位置适当调整接口距离，方便用户安装。

For standard products, the interface distance can be adjusted appropriately according to the customer's installation location to facilitate user installation.

低能耗、维护简易。

Low energy consumption and easy maintenance.

无需水源，适合更多无经济性水源的地区使用。

No water source is required, making it suitable for use in more areas where there is no economically viable water source.

箱式结构，美观大方。

The box-type structure is aesthetically pleasing.

风冷型后部冷却器型号规格与性能参数

Air-cooled aftercooler model specifications and performance parameters

型号 model	空气处理量 Air handling capacity (m ³ /min)	接口管径 Interface pipe diameter	电源 power supply (V/Hz)	压力 Pressure (Mpa)	进气温度 Intake temperature
BLALF-30	34	DN80	380/50	0.6-1.0	≤90℃
BLALF-40	45	DN80	380/50	0.6-1.0	≤90℃
BLALF-50	55	DN100	380/50	0.6-1.0	≤90℃
BLALF-65	65	DN100	380/50	0.6-1.0	≤90℃
BLALF-70	75	DN125	380/50	0.6-1.0	≤90℃
BLALF-80	85	DN125	380/50	0.6-1.0	≤90℃
BLALF-100	110	DN150	380/50	0.6-1.0	≤90℃
BLALF-200	220	DN200	380/50	0.6-1.0	≤90℃

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水冷型后部冷却器

Water-cooled aftercooler

产品简介

Product Brief

往复式空压机和螺杆式空压机的排气温度都很高，前者达到140°C，后者也有70°C左右，都含油大量的水分和油污，超出了后续净化设备的运行条件，所以必须进行降温前处理。天源TYAL系列压缩空气冷却器，采用管束结构、使换热面积增大，确保高温压缩空气能冷却到额定的温度。水冷型后部冷却器以水作为冷却介质，工作上基本不受环境温度的影响，具有体积小，冷却效率高的特点。

Both reciprocating and screw air compressors have very high exhaust temperatures, reaching 140°C for the former and around 70°C for the latter. Both contain significant amounts of water and oil, exceeding the operating conditions of subsequent purification equipment, thus requiring pre-cooling treatment. Tianyuan's TYAL series compressed air coolers utilize a tube bundle structure, increasing the heat exchange area to ensure that high-temperature compressed air is cooled to its rated temperature. The water-cooled aftercooler uses water as the cooling medium, making its operation largely unaffected by ambient temperature, and features a compact size and high cooling efficiency.



工况条件与技术指标

Operating conditions and technical specifications

进气压力	Intake pressure	0.6-1.0Mpa
进气温度	Intake temperature	≤140°C
出气温度	outlet air temperature	≤45°C
冷却水进口温度	Cooling water inlet temperature	≤32°C
冷却水进水压力	Cooling water inlet pressure	≤0.2-0.4Mpa
初始压降	initial pressure drop	≤0.02Mpa

注：上述参数压力技术标准0.7Mpa

Note: The pressure standard for the above parameters is 0.7 MPa.

高效除油器

BLU HIGH EFFICIENCY OIL REMOVER

型号 model	空气处理量 Air handling capacity (m ³ /min)	耗水量 Water consumption (m ³ /h)	空气接口管径 Air interface pipe diameter	冷却水管口径 Cooling water pipe diameter	高 High (mm)	筒径 Barrel diameter (mm)	设备重量 Equipment weight (KG)
BLAL-1	1.2	0.5	G1"	Rc1"	1055	Φ89	31
BLAL-2	2.5	1	G1"	RC1"	1305	Φ108	43
BLAL-3	3.6	1	G1"	RC1"	1305	Φ108	43
BLAL-6	6.8	1.5	G1(1/2)"	RC1"	1330	Φ159	68.5
BLAL-8	8.5	3	G2"	RC1(1/2)"	1780	Φ159	85
BLAL-10	10.9	3	G2"	RC1(1/2)"	1780	Φ159	85
BLAL-12	12.8	3	G2"	RC1(1/2)"	1780	Φ159	85
BLAL-15	16	4.5	DN65	RC2"	1657	Φ219	139
BLAL-20	22	6	DN65	RC2"	1657	Φ219	143
BLAL-25	26	9	DN80	RC2"	1663	Φ273	188
BLAL-30	32	9	DN80	RC2"	1663	Φ273	199
BLAL-40	43	12	DN100	RC2(1/2)"	2023	Φ273	232
BLAL-50	53	15	DN100	RC2(1/2)"	2087	Φ325	296
BLAL-60	67	18	DN125	RC2(1/2)"	2087	Φ325	313.5
BLAL-80	90	24	DN125	RC2(1/2)"	2287	Φ325	339
BLAL-100	110	30	DN150	RC3"	2413	Φ377	474.5
BLAL-120	130	35	DN150	DN100	2520	Φ412	449
BLAL-150	160	45	DN200	DN100	2620	Φ412	510
BLAL-200	210	60	DN200	DN100	2845	Φ462	645
BLAL-250	260	75	DN250	DN125	2910	Φ512	808
BLAL-300	310	90	DN250	DN125	3210	Φ512	882

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高效除油器

BLU HIGH EFFICIENCY OIL REMOVER



高效除油器工作原理

Working principle of high-efficiency degreaser

该系列产品是以超细纤维为主体滤材,采用旋风分离,预过滤器和凝聚式精滤三级净化,与油润压缩机配套使用时,可获得低于无油润滑压缩机含油量的气质水平,而且具有相当高的除尘能力及一定的脱湿干燥能力。广泛用于气动仪表、自动控制及食品、医药、化工、轻纺、石油、喷漆、电讯、冶金、橡胶等行业。

This series of products is mainly composed of ultrafine fibers as the main filter material, using cyclone separation, pre filter, and coagulation fine filtration for three-stage purification. When used in conjunction with an oil lubricated compressor, it can achieve a gas quality level lower than that of an oil-free lubricated compressor, and has a relatively high dust removal ability and a certain degree of dehumidification and drying ability. Widely used in pneumatic instruments, automatic control, food, pharmaceutical, chemical, textile, petroleum, spray painting, telecommunications, metallurgy, rubber and other industries.

工况条件与技术指标

Operating conditions and technical specifications

进气压力	Intake pressure	0.6-1.0MPa
进气温度	Intake air temperature	0°C-50°C
初始降压	Initial voltage reduction	≤-0.02MP-a
出口气体含油量	Outlet air oil content	≤0.1PPM-0.01PPM

高效除油器

BLU HIGH EFFICIENCY OIL REMOVER

型号 model	处理气量 Processing gas volume (m ³ /min)	接管口径 Air inlet diameter	高 High (mm)	筒径 Barrel diameter (mm)	设备重量 Equipment weight (KG)
BLU-1.6	1.2	RC-1	1062	133	21
BLU-2.6	2.6	RC-1	1062	133	22
BLU-3.6	3.6	RC-1(1/2)	1112	159	41
BLU-6.8	6.8	RC-1(1/2)	1262	159	55
BLU-8.5	8.5	RC-2	1350	219	72
BLU-10	11	RC-2	1410	219	72
BLU-13	13	RC-2	1410	219	72
BLU-15	16	DN65	1450	219	85
BLU-20	22	DN80	1634	219	90
BLU-25	26	DN80	1598	273	116
BLU-30	32	DN80	1909	273	123
BLU-40	43.5	DN100	1951	325	145
BLU-50	53	DN100	1951	325	210
BLU-60	67	DN125	2155	377	225
BLU-80	90	DN150	2250	377	240
BLU-100	110	DN150	2270	412	270
BLU-120	130	DN150	2320	412	295
BLU-150	160	DN200	2350	462	325
BLU-180	210	DN200	2380	512	390
BLU-200	260	DN250	2400	562	478
BLU-250	310	DN300	2650	612	595

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压缩空气油水分离器

BLS COMPRESSED AIR OIL-WATER SEPARATOR



汽水分离器的工作原理

Working principle of soda water separator

工作原理:含固体颗粒、液态油、水等杂质的混合气体进入油水分离器时经由旋风引导变向后,高速离心分离至筒壁,通过重力沉降、汇集水槽,液态油水夹杂固体颗粒,经排水管排出。

Working principle: When a mixed gas containing solid particles, liquid oil, water and other impurities enters the oil-water separator, it is guided backwards by a cyclone and separated by high-speed centrifugation to the cylinder wall. Through gravity settling and collection in a water tank, the liquid oil-water mixture with solid particles is discharged through a drainage pipe.

工况条件与技术指标

Operating conditions and technical specifications

进气压力	Intake pressure	0.6-1.0MPa
进气温度	Intake air temperature	5°C-65°C
初始降压	Initial voltage reduction	≤0.003MPa
除水率	Water removal rate	≥99%

压缩空气油水分离器特点

Characteristics of compressed air oil-water separator

- | | | | |
|----------|------------------------|----------|---|
| 1、99%高效能 | 1. 99% high efficiency | 4、清除管道锈压 | 4. Remove rust and pressure from the pipeline |
| 2、大流量 | 2. Large traffic | 5、低压降 | 5. Low pressure drop |
| 3、专业设计 | 3. Professional Design | 6、减少维护保养 | 6. Reduce maintenance and upkeep |

压缩空气油水分离器

Compressed air oil-water separator

型号 model	处理气量 Processing gas volume (m ³ /min)	接管口径 Air inlet diameter	高 High (mm)	筒径 Barrel diameter (mm)	设备重量 Equipment weight (KG)
BLS-1.6	1.6	G1	735	133	21
BLS-2.6	2.6	G1	735	133	23
BLS-3.6	3.6	G1(1/2)	735	133	25
BLS-6	6.5	G1(1/2)	1050	159	21
BLS-8	8	G2	1090	159	35
BLS-10	10	G2	1090	159	43
BLS-13	13	G2	1190	159	45
BLS-15	16	DN65	1350	219	68
BLS-20	22	DN80	1450	219	75
BLS-25	26	DN80	1500	273	112
BLS-30	36	DN80	1680	273	125
BLS-40	48	DN100	1650	325	165
BLS-50	58	DN100	1690	325	180
BLS-60	66	DN125	1760	377	168
BLS-80	90	DN150	1800	377	168
BLS-100	110	DN150	1910	412	197
BLS-120	130	DN150	1950	412	235
BLS-150	170	DN200	2100	462	280
BLS-200	210	DN200	2050	512	345
BLS-250	275	DN250	2280	562	390
BLS-300	330	DN300	2360	612	430
BLS-350	350	DN300	2420	662	495
BLS-400	400	DN350	2450	712	575
BLS-450	450	DN350	2620	762	680
BLS-500	500	DN350	2550	812	730

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Our company reserves the right to make technical changes without prior notice, except for errors and omissions.

精密过滤器

PRECISION FILTER



工况条件与技术指标

Operating conditions and technical specifications

进气压力	Intake pressure	0.6-1.0MPa
进气温度	Intake air temperature	≤130°C
初始降压	Initial voltage reduction	≤0.07MPa
过滤精度	Filtration accuracy	0.01um

不锈钢精密过滤器 Stainless steel precision filter

型号 model	处理气量 Processing gas volume (m ³ /min)	空气接管口径 Air inlet diameter	设备重量 Equipment weight (KG)	长 long (mm)	宽 Width (mm)	高 high (mm)	耐压 pressure resistance (MPa)
BLCJ-1	1.5	G1	4.8	160	360	76	1.6
BLCJ-2	2.5	G1	4.9	160	360	76	1.6
BLCJ-3	3.8	G1	5	160	360	76	1.6
BLCJ-4	4.5	G1	7	200	460	89	1.6
BLCJ-5	5.5	G1 1/2	7.2	200	460	89	1.6
BLCJ-6	6.8	G1 1/2	13	220	600	108	1.6
BLCJ-10	11.5	G2	18	230	900	108	1.6
BLCJ-13	13.8	G2	18.5	230	900	108	1.6
BLCJ-15	17	DN65/DN80	27	310	1050	133	1.6
BLCJ-20	22	DN65/DN80	30	310	1150	133	1.6
BLCJ-25	27	DN65/DN80	36	310	1250	133	1.6
BLCJ-35	35	DN80/DN100	40	360	1150	159	1.6
BLCJ-45	45	DN80/DN100	42	360	1250	159	1.6

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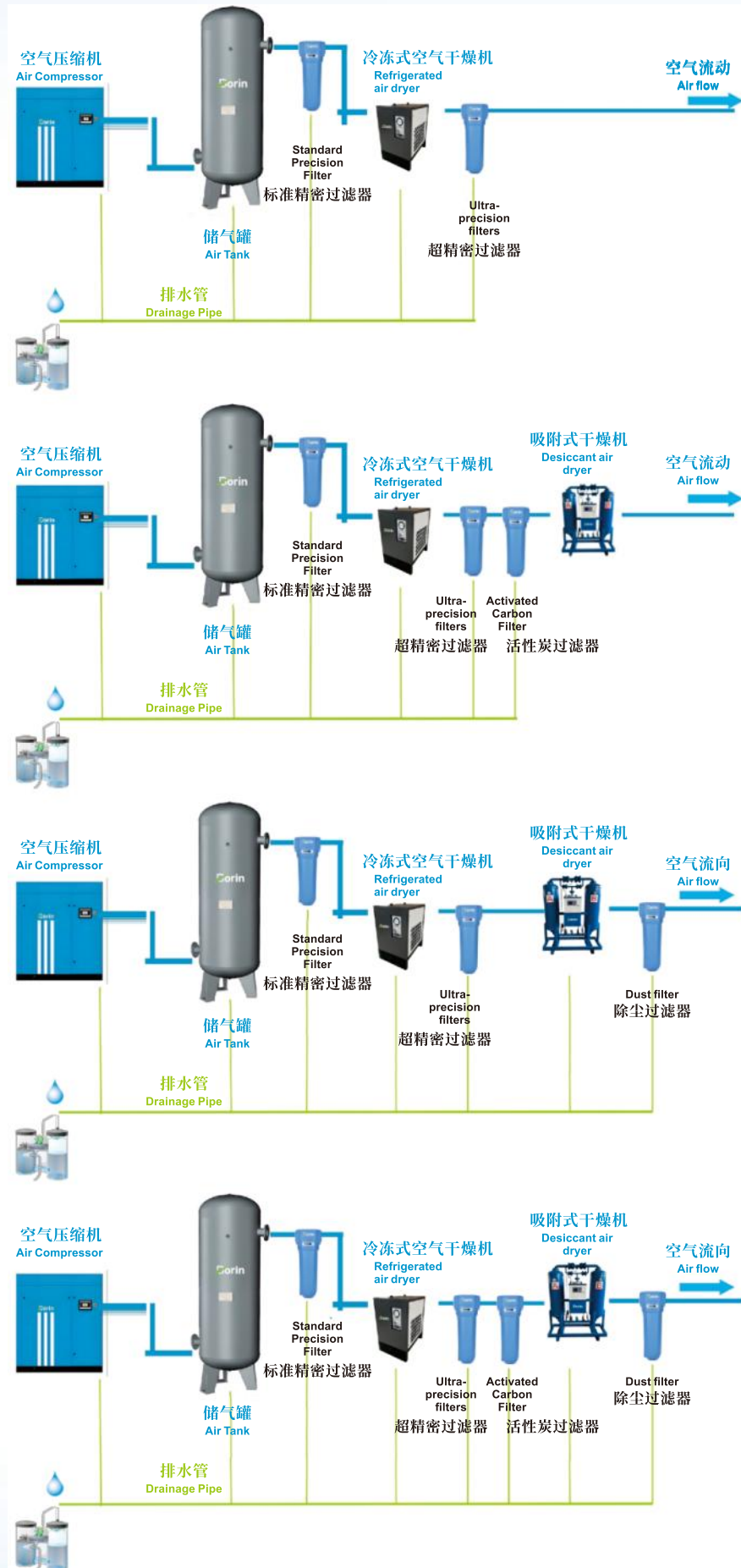
法兰精密过滤器 Flange precision filter



型号 model	流量 Processing gas volume (m ³ /min)	滤芯数量 Number of filter elements	高 high (mm)	筒径 Barrel diameter (mm)	接管口径 Air inlet diameter	设备重量 Equipment weight(KG)
BLAF-10	11	1	159	990	DN50-80(65)	26
BLAF-15	16	1	159	990	DN50-80(65)	36
BLAF-20	22	1	159	1120	DN80	39.5
BLAF-25	26.8	1	159	1270	DN80	40.5
BLAF-30	32	2	219	1120	DN80-100	68
BLAF-40	43.5	2	219	1200	DN80-100	75
BLAF-50	53	3	219	1200	DN100	93
BLAF-60	67	3	273	1395	DN125	107
BLAF-80	90	4	325	1470	DN150	147
BLAF-100	110	5	325	1470	DN150	151
BLAF-120	130	5	377	1475	DN150	153
BLAF-150	160	8	450	1555	DN200	198
BLAF-180	190	10	450	1560	DN200	210
BLAF-200	210	10	462	1580	DN200	270
BLAF-250	260	12	462	1580	DN250	285
BLAF-300	315	17	612	1790	DN300	340

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Borin 博菱

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