大通宝富
FAN FACTORIES

DART-RICH
诚实守信·专注专业·利他共生
Honest and Trustworthy;
Dedicated and Professional;
Altruism and Mutualism

狼山——中国佛教八小名山之首
Langshan Mountain——One of the Eight Famous Mountains of Buddhism in China

蒸气压缩机
Steam Compressor

可靠、绿色流体机械的引领者！
Reliable and green leader in fluid machinery！

产品·方案·服务
Product Project Service

南通大通宝富风机有限公司
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2024版
2024 Version

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公司简介

COMPANY INTRODUCTION

南通大通宝富风机有限公司
Nantong Dart-Rich Fan Co., LTD.

大通宝富（湖南）风机有限公司
Dart-Rich (Hunan) Fan Co., LTD.

南通大通宝富风机有限公司（原国营南通风机厂）创建于1966年；2019年6月进行股权结构改革，成为合伙人制企业；为满足公司快速发展的需要，大通宝富（湖南）风机有限公司于2020年12月成立。公司于2004年引进德国技术，在产品的稳定可靠、高效低噪、耐磨耐温等方面取得了重大技术突破。是水蒸气压缩机团体标准主笔人。

大通宝富已通过ISO9001、ISO14001、ISO45001体系认证。主要产品有：蒸气压缩机、通风机、鼓风机，产品广泛应用于冶金、化工、电力、环保、建材、轻工、新能源、军用核工业等领域，并提供风系统节能改造等系统优化解决方案及维保服务。

大通宝富一直坚持管理创新、机制创新、文化创新、技术创新，持续进行数智化、奋斗者文化和“三智”建设，深度洞察市场，不断推进组织裂变，提升客户服务综合能力，实现了快速健康发展。

大通宝富始终坚守“诚实守信、专注专业、利他共生”的核心价值观。持续提升企业价值，不断为客户创造最大价值，实现所有利益相关方的共担共创共享。致力于成为可靠、绿色流体机械的引领者！

Nantong Dart-Rich Fan Co., LTD. (former as State-Owned Nantong Fan Factory) was founded in 1966. In June 2019, the equity structure reform was carried out and the company became a partnership enterprise; to meet the needs of the company's rapid development, Dart-Rich (Hunan) Fan Co., Ltd. was established in December 2020. The company imported German technology in 2004 and made significant technological breakthroughs in the aspects of product stability, reliability, high efficiency, low noise, wear resistance and temperature resistance, etc. Dart-Rich is the lead author of the group standard for steam compressors.
Dart-Rich has passed ISO9001, ISO14001, and ISO45001 system certifications. The main products include steam compressors, fans, blowers, which are widely used in fields such as metallurgy, chemical industry, electric power, environmental protection, building materials, light industry, new energy, and military nuclear industry. We also provide system optimization solutions and maintenance services for energy-saving renovation of wind systems.
Dart-Rich is always persisting in the management innovation, mechanism innovation, culture innovation, and technology innovation, and continues to carry out the construction of digital intelligence, striver culture and "three wisdom", it has a deep insight into the market, constantly promotes the organization fission, improves the comprehensive ability of customer service, and realizes the rapid and healthy development.
Dart-Rich adheres to the core values of "Honest and Trustworthy; Dedicated and Professional; Altruism and Mutualism", continuously enhances enterprise value, creates maximum value for customers, and realizes shared responsibility, creation, and sharing among all stakeholders, and committed to becoming the leader of reliable green fluid machinery!

产品·方案·服务
Product Project Service

1966年
公司成立
Founded in 1966

700余名
优秀员工
More than 700 outstanding staff

100余名
专业技术人员
More than 100 professional and technical staff

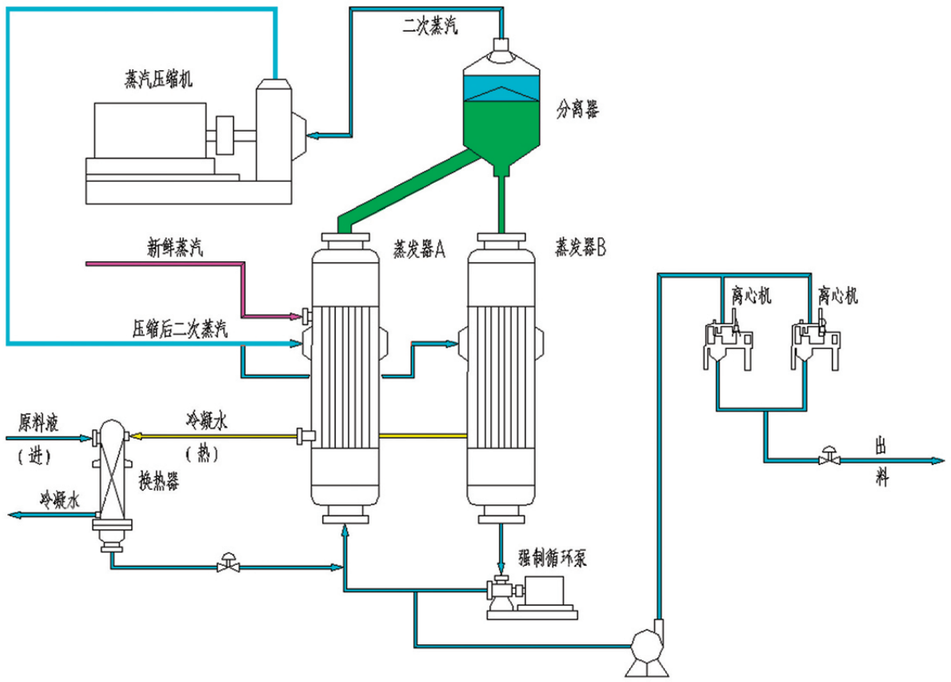
200台
高端精良加工设备
200 sets high-end sophisticated processing equipment

2产品+1服务
离心通风机、蒸气压缩机+风系统优化及维保
2 products + 1 service fans, steam compressors +optimisation and maintenance of wind system

蒸汽压缩机应用系统工作原理

WORKING PRINCIPLE OF STEAM COMPRESSOR APPLICATION SYSTEMS

01 MVR系统工作原理
Working Principle of MVR System



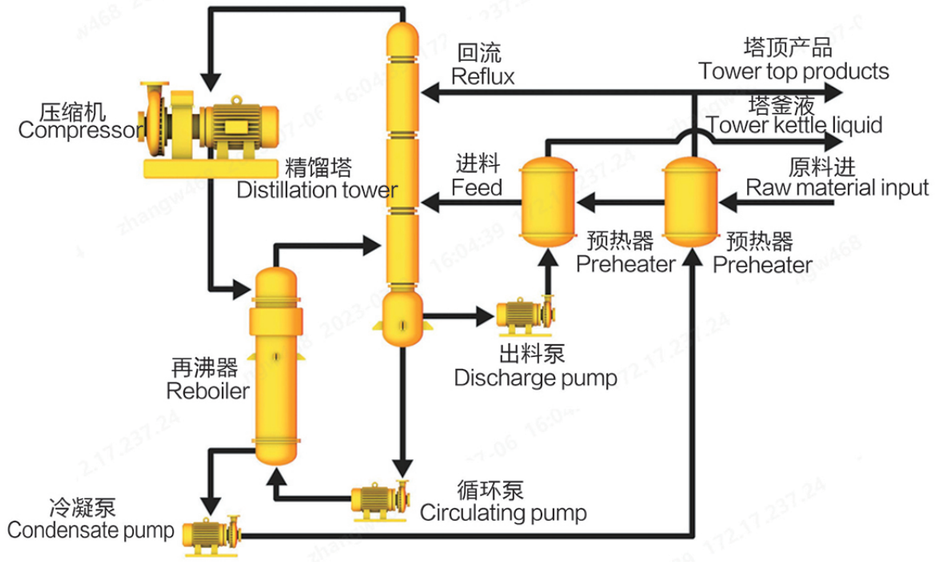
MVR是蒸汽机械再压缩技术（Mechanical Vapor Recompression）的简称。MVR是重新利用它自身产生的二次蒸汽的能量，从而减少对外界能源的需求的一项节能技术。其基本原理是通过高能效蒸汽压缩机来压缩蒸发器出来的二次蒸汽，将电能转换为热能，提高二次蒸汽的压力和温度，升温后二次蒸汽重新回到蒸发器对物料加热产生蒸发，从而达到二次蒸汽的汽化潜热循环使用的目的。

MVR, short for mechanical vapor recompression, is an energy-saving technology to reduce the demand for external energy by means of reutilizing the secondary steam energy it generated. Its basic principle is that the secondary steam generated by the evaporator is compressed with high energy efficiency steam compressor to convert the electrical energy to thermal energy, then rise in pressure and temperature of the secondary steam and the temperature risen returns the secondary steam to the evaporator to heat the materials and generate evaporation, so as to realize recycling of latent heat of vaporization of secondary steam.

盐类名称 Salt name	101℃	102℃	103℃	104℃	105℃	107℃	110℃	115℃	120℃	125℃	140℃	160℃	180℃	200℃	220℃	240℃	260℃	280℃	300℃	340℃
	质量分数/% Mass fraction/%																			
$CaCl_2$	5.66	10.31	14.16	17.36	20	24.24	29.33	35.68	40.83	54.8	57.89	68.94	75.85	64.91	68.73	72.64	75.76	78.95	81.63	86.18
KOH	4.49	8.51	11.96	14.82	17.01	20.88	25.65	31.97	36.51	40.23	48.05	54.89	60.41							
KCl	8.42	14.31	18.96	23.02	26.57	32.62	36.47	近于108.5° Close to 108.5°												
K_2SO4	9.1	20																		
K_2CO_3	10.31	18.37	24.24	28.57	32.24	37.69	43.97	50.58	56.04	60.4	66.94	近于133.5° Close to133.5°								
KNO_3	13.19	23.66	32.23	39.2	45.1	54.65	65.34	79.53												
$MgCl_2$	4.67	8.42	11.66	14.31	16.59	20.23	24.41	29.48	33.07	36.02	38.61									
$MgSO_4$	14.31	22.78	28.31	32.23	35.32	42.86	近于108° Close to108°													
NaOH	4.12	7.4	10.15	12.51	14.53	18.32	23.08	26.21	33.77	37.58	48.32	60.13	69.97	77.53	84.03	88.89	93.02	9.92	98.47	
NaCl	6.19	11.03	14.67	17.69	20.32	25.09	28.92	近于108° Close to 108.5°												近于314° Close to314°
$NaNO_3$	8.26	15.61	21.87	27.53	32.43	40.47	49.87	60.94	68.94											
Na_2SO_4	15.26	24.81	30.73	31.83	近于104.2° Close to 104.2°															
Na_2CO_3	9.42	17.22	23.72	29.18	33.86															
$CuSO_4$	26.95	39.98	40.83	44.47	45.12	近于104.2° Close to 104.2°														
$ZnSO4_4$	20	31.22	37.89	42.92	46.15															
Nh_4NO_3	9.09	16.66	23.08	29.08	34.21	42.52	51.92	63.24	71.26	77.11	87.09	93.2	69	97.61						
NH_4Cl	6.1	11.35	15.96	19.8	22.89	28.37	35.98	46.94												
$(NH_4)_2SO$	13.34	23.41	30.65	36.71	41.79	49.73	49.77	53.55	近于108.2° Close to 108.2°											

常见物料浓度与沸点数据表
Concentration and boiling point data sheet for common materials

02 热泵精馏工作原理
Working principle of heat pump distillation



热泵精馏是通过外加功将塔顶蒸汽加压升温至更高品位，作为塔底再沸热源，回收塔顶蒸汽的潜热。

Heat pump distillation is the process of pressurizing and heating the steam at the tower top to a higher grade by external power, which serves as a reboiler heat source at the tower bottom to recover the latent heat of the steam at the tower top.

直接压缩式热泵精馏是以塔顶汽相为工质，通过外部压缩机提高塔顶汽相的能位，使其可以作为塔底再沸器的高温热源。一般塔顶汽相直接压缩式热泵精馏适用于塔顶和塔釜温差较小，沸点相近的分离体系。

Direct compression heat pump distillation uses the tower top vapor phase as the working fluid and increases the energy level of the tower top vapor phase through an external steam compressor, to make it high-temperature heat source for the tower bottom reboiler. For example, in Figure below, the direct compression heat pump distillation is generally suitable for separation systems with small temperature differences and similar boiling points between the tower top and the tower bottom.

温度/℃ Temp./	饱和压力/kPa Saturation pressure/kPa	温度/℃ Temp./	饱和压力/kPa Saturation pressure/kPa	温度/℃ Temp./	饱和压力/kPa Saturation pressure/kPa
20	5.876	64	55.751	108	292.974
21	6.238	65	58.221	109	302.661
22	6.619	66	60.782	110	312.604
23	7.020	67	63.437	111	322.810
24	7.442	68	66.189	112	333.283
25	7.886	69	69.040	113	344.029
26	8.353	70	71.994	114	355.051
27	8.843	71	75.052	115	366.357
28	9.358	72	78.219	116	377.950
29	9.899	73	81.497	117	389.835
30	10.467	74	84.888	118	402.019
31	11.063	75	88.397	119	414.506
32	11.688	76	92.025	120	427.301
33	12.343	77	95.777	121	440.411
34	13.029	78	99.656	122	453.840
35	13.749	79	103.664	123	467.594
36	14.502	80	107.805	124	481.678
37	15.290	81	112.083	125	496.097
38	16.115	82	116.501	126	510.859
39	16.978	83	121.062	127	525.967
40	17.880	84	125.770	128	541.427
41	18.823	85	130.629	129	557.246
42	19.808	86	135.641	130	573.429
43	20.837	87	140.812	131	589.982
44	21.912	88	146.144	132	606.909
45	23.034	89	151.642	133	624.219
46	24.204	90	157.308	134	641.915
47	25.425	91	163.149	135	660.004
48	26.698	92	169.166	136	678.491
49	28.024	93	175.364	137	697.384
50	29.407	94	181.748	138	716.687
51	30.847	95	188.321	139	736.406
52	32.347	96	195.087	140	756.548
53	33.908	97	202.052	141	777.119
54	35.533	98	209.218	142	798.125
55	37.223	99	216.591	143	819.571
56	38.981	100	224.175	144	841.464
57	40.809	101	231.973	145	863.810
58	42.709	102	239.992	146	886.615
59	44.684	103	248.235	147	909.885
60	46.734	104	256.706	148	933.627
61	48.864	105	265.411	149	957.846
62	51.075	106	274.355	150	982.550
63	53.370	107	283.541		

乙醇饱和蒸汽温度压力对照表
Comparison table for temperature and pressure of ethanol saturated steam

温度/℃ Temp./℃	饱和压力/kPa Saturation pressure/kPa	温度/℃ Temp./℃	饱和压力/kPa Saturation pressure/kPa	温度/℃ Temp./℃	饱和压力/kPa Saturation pressure/kPa
20	13.032	64	99.417	108	452.371
21	13.751	65	103.407	109	466.122
22	14.505	66	107.529	110	480.206
23	15.293	67	111.787	111	494.632
24	16.118	68	116.184	112	509.405
25	16.981	69	120.724	113	524.530
26	17.884	70	125.409	114	540.015
27	18.826	71	130.244	115	555.864
28	19.812	72	135.232	116	572.086
29	20.840	73	140.378	117	588.684
30	21.914	74	145.684	118	605.667
31	23.035	75	151.154	119	623.041
32	24.205	76	156.793	120	640.812
33	25.425	77	162.605	121	658.986
34	26.696	78	168.592	122	677.570
35	28.021	79	174.760	123	696.571
36	29.402	80	181.113	124	715.996
37	30.840	81	187.654	125	735.852
38	32.338	82	194.388	126	756.144
39	33.896	83	201.319	127	776.881
40	35.518	84	208.451	128	798.069
41	37.205	85	215.790	129	819.715
42	38.960	86	223.338	130	841.827
43	40.784	87	231.102	131	864.412
44	42.679	88	239.085	132	887.476
45	44.649	89	247.292	133	911.027
46	46.694	90	255.727	134	935.073
47	48.818	91	264.396	135	959.621
48	51.023	92	273.303	136	984.678
49	53.311	93	282.454	137	1010.253
50	55.684	94	291.852	138	1036.352
51	58.146	95	301.504	139	1062.984
52	60.699	96	311.413	140	1090.155
53	63.345	97	321.586	141	1117.875
54	66.087	98	332.027	142	1146.151
55	68.928	99	342.741	143	1174.991
56	71.870	100	353.735	144	1204.402
57	74.917	101	365.012	145	1234.394
58	78.071	102	376.579	146	1264.974
59	81.336	103	388.441	147	1296.150
60	84.713	104	400.604	148	1327.931
61	88.207	105	413.072	149	1360.325
62	91.820	106	425.853	150	1393.340
63	95.556	107	438.950		

甲醇饱和蒸汽温度压力对照表

Comparison table for temperature and pressure of methanol saturated steam

03 余热回收工作原理
Working principle of waste heat recovery

通过消耗少量电能，将低品位（低温低压）蒸汽经蒸汽压缩机压缩变为高品位（高温高压）蒸汽，实现蒸汽余热的高效利用。可降低企业蒸汽使用成本和冷却水消耗，也可以解决某些生产企业乏汽浪费和中低压蒸汽不足之间的矛盾。

By consuming a small amount of electrical energy, low-grade (low temperature and low pressure) steam is compressed into high-grade (high temperature and high pressure) steam through a steam compressor, which achieves efficient utilization of steam, reduces the cost of steam usage and cooling water consumption in enterprises, and also solves the contradiction between exhaust steam costs and insufficient medium and low pressure steam in some production enterprises.

温度/℃ Temp./℃	饱和压力/kPa Saturation pressure/kPa	温度/℃ Temp./℃	饱和压力/kPa Saturation pressure/kPa	温度/℃ Temp./℃	饱和压力/kPa Saturation pressure/kPa
20	2.339	64	23.942	108	134.007
21	2.488	65	25.041	109	138.626
22	2.645	66	26.183	110	143.376
23	2.811	67	27.368	111	148.259
24	2.986	68	28.599	112	153.278
25	3.170	69	29.876	113	158.435
26	3.364	70	31.201	114	163.734
27	3.568	71	32.575	115	169.177
28	3.783	72	34.000	116	174.768
29	4.009	73	35.478	117	180.509
30	4.247	74	37.009	118	186.404
31	4.497	75	38.595	119	192.455
32	4.759	76	40.239	120	198.665
33	5.035	77	41.941	121	205.039
34	5.325	78	43.703	122	211.578
35	5.629	79	45.527	123	218.287
36	5.947	80	47.415	124	225.168
37	6.282	81	49.368	125	232.224
38	6.632	82	51.387	126	239.460
39	7.000	83	53.476	127	246.878
40	7.384	84	55.636	128	254.481
41	7.787	85	57.867	129	262.274
42	8.209	86	60.174	130	270.260
43	8.650	87	62.556	131	278.441
44	9.112	88	65.017	132	286.823
45	9.594	89	67.559	133	295.407
46	10.099	90	70.182	134	304.199
47	10.626	91	72.890	135	313.201
48	11.176	92	75.685	136	322.418
49	11.751	93	78.568	137	331.852
50	12.351	94	81.542	138	341.508
51	12.977	95	84.609	139	351.390
52	13.631	96	87.771	140	361.501
53	14.312	97	91.031	141	371.845
54	15.022	98	94.390	142	382.427
55	15.761	99	97.852	143	393.250
56	16.532	100	101.418	144	404.318
57	17.335	101	105.091	145	415.635
58	18.171	102	108.874	146	427.205
59	19.041	103	112.768	147	439.033
60	19.946	104	116.777	148	451.122
61	20.887	105	120.902	149	463.477
62	21.866	106	125.147	150	476.101
63	22.884	107	129.515		

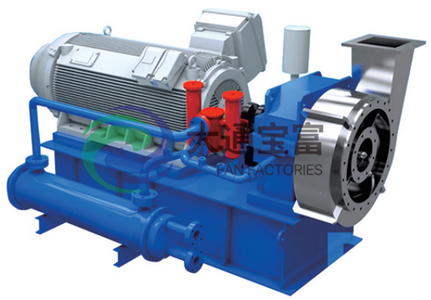
饱和蒸汽温度压力对照表
Comparison table for saturated steam temperature and pressure

流量t/h Flow t/h	入口温度℃ Inlet Temp. ℃	出口温度145 ℃ Outlet Temp. 145 ℃	出口温度165 ℃ Outlet Temp. 165℃	出口温度180 ℃ Outlet Temp.180℃
		运行费用（元/t） operating cost (CNY/t)		
5	80	99	122	134
	90	82	106	120
	100	68	92	105
10	80	98	118	132
	90	81	103	117
	100	67	89	104
20	80	97	118	131
	90	81	102	116
	100	66	88	102
40	80	94	115	128
	90	79	101	114
	100	65	87	101

使用大通宝富压缩机吨蒸汽的电耗
Electricity consumption per ton of steam by using Dart-Rich compressor

单级齿轮增速蒸汽压缩机

SINGLE-STAGE GEAR BOOSTER STEAM COMPRESSOR



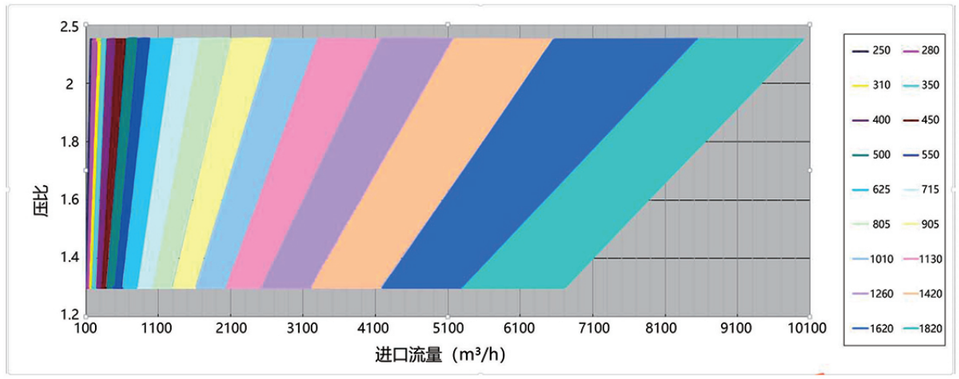
DM系列单级齿轮增速蒸汽压缩机主要由压缩机本体、联轴器、齿轮箱、润滑系统、电动机、电气仪表及防喘振系统等组成，结构紧凑、便于维护。

DM series Single-stage geard steam compressor mainly includes compressor body, coupling, gearbox, lubrication system, motor, electric instrument and anti-surge control system. It is of compact structure and convenient for maintenance.

性能范围Performance Range

该产品气动技术全套引进国外成熟模型级及设计软件，为用户提供最快最优选型。产品分为18个系列，适用流量范围1-240t/h、温升8-24℃。

The complete set of pneumatic technology for this product is imported from foreign mature stage model and design software so that we can provide clients with fast and optimal model selection. The products can be divided into 18 series, with applicable flow rate of 1-240 t/h and temperature rise of 8-24℃.



产品特点Product Features

01

采用高效三元流半开式叶轮，专业的气动和结构设计，叶轮型线先进、稳定工况范围宽，主机最高多变效率可达到88%。

With the high-efficient 3D flow semi-open impeller, the professional aerodynamic and structural design, the impeller profile is advanced and the blower has a wide range of stable operating condition. The highest efficiency of the main machine can reach up to 88%.

02

采用无叶扩压器，机组运行范围宽。

With the adoption of a bladeless diffuser, it has a wide operating range.

03

齿轮箱与压缩机结构整体一体化设计，结构紧凑。

The gearbox and compressor are integrated and designed in a compact structure.

04

压缩机、齿轮箱和电动机为整体撬装式设计，便于运输和安装。

The product is an integral skid-mounted package, consisting of compressor, gear box and motor, which is easy for transportation and installation.

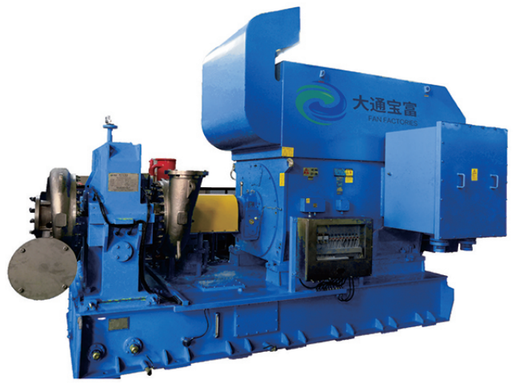
05

自动化程度高，可靠性好，高效节能，操作方便。

High degree of automation, good reliability, high efficiency and energy saving, easy operation.

多级齿轮增速蒸汽压缩机

MULTI-STAGE GEAR BOOSTER STEAM COMPRESSOR



DHM帝鸿系列多级齿轮增速蒸汽压缩机主要由主机、润滑系统、电动机、联轴器、电气仪表及防喘振系统等组成，结构紧凑、便于维护。

The DHM DiHong multi-stage steam compressor is mainly composed of a host, lubrication system, motor, coupling, electrical instruments and anti-surge system, with a compact structure and easy maintenance.

性能范围Performance Range

该产品气动技术全套引进国外成熟模型级及设计软件，为用户提供最快最优选型。产品分为10个系列，适用流量范围1-120 t/h、温升25-105℃。

The pneumatic technology for this product is fully imported from foreign mature model level and design software, providing users with the fastest and most optimized model. The product is divided into 10 series, with a suitable flow range of 1-120t/h and a temperature rise of 25-105 ℃.

产品特点Product Features

01

采用高效三元流半开式叶轮，专业的级间气动匹配，整机稳定工况范围宽，主机最高多变效率可达88%

Adopting high-efficiency ternary flow semi-open impeller, professional inter-stage pneumatic matching, the whole machine has a wide range of stable working conditions, and the highest multi-variable efficiency of the host can reach 88%.

02

采用IGV+循环线调节满足用户多工况需求，机组运行范围宽、效率高；

Adopting IGV+circulation line adjustment to meet the user's demand for multiple working conditions, the machine has a wide operating range and high efficiency.

03

整体撬装式设计，多转子与增速箱整体一体化设计，结构紧凑；

The overall skid-mounted design, multi-rotor and speed booster box overall integrated design, compact structure.

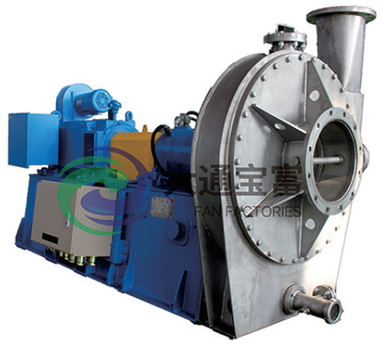
04

蒸汽温升可达105℃。

The temperature rise of steam can reach 105 ℃.

低温升蒸汽压缩机

LOW TEMPERATURE RISE STEAM COMPRESSOR



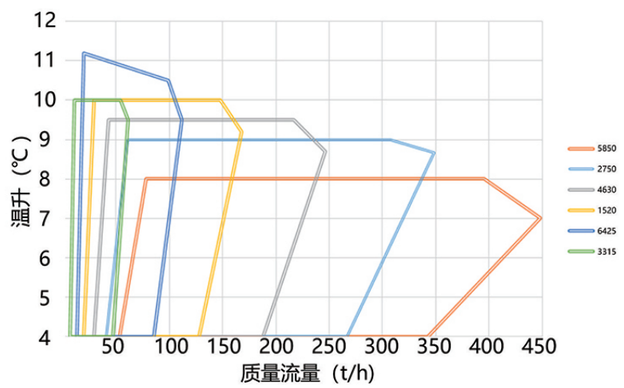
DML系列低温升蒸汽压缩机主要由压缩机本体（壳体、叶轮、主轴、轴承箱、密封等）、联轴器、电动机、电气仪表等组成。

The low temperature rise steam compressor is mainly composed of a compressor body (volute, impeller, main shaft, bearing housing, seal, etc.), coupling, motor, electric instrument, etc.

性能范围Performance Range

该产品气动技术全套引进国外成熟模型级及设计软件，为用户提供最快最优选型。产品分为5个系列，适用流量范围4-250t/h、温升4-11.2℃。

The complete set of pneumatic technology for this product is imported from foreign mature stage model and design software, providing users with the fastest and best selection. The products are divided into 5 series, the applicable flow range is 4-250 t/h, and the temperature rise is 4-11.2℃.



产品特点Product Features

01

叶轮通过模具成型，材质为双相不锈钢，具有良好的耐磨及抗腐蚀性。

Impellers are forged and shaped using mould, and the materials are of duplex stainless steel, which is anti-corrosive and has a good wear resistance.

02

采用SKF滚动轴承、喷油润滑。

SKF rolling bearing and oil spray lubrication are adopted.

03

轴端密封采用碳环密封结构并加装充气或真空装置，确保轴承箱与压缩机壳体充分隔离。

The shaft end adopts carbon ring seal structure with an inflation or vacuum unit to ensure the sufficient isolation between the bearing housing and the compressor volute.

04

压缩机组为整体撬装式设计，便于运输和安装。

The compressor unit is of integral skid-mounted design, which is convenient for transportation and installation.

05

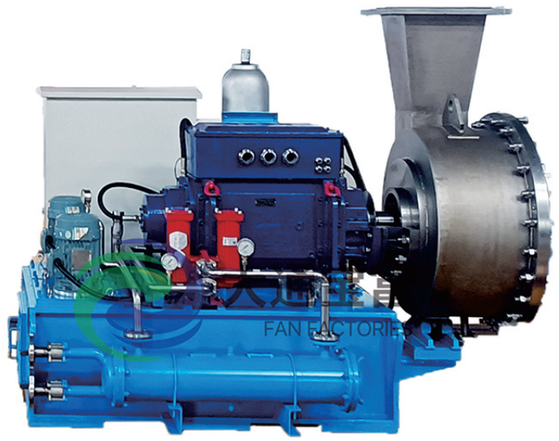
自动化程度高、操作方便，实时监控压力、振动等参数，通过变频调速实现压缩机变工况运行、确保系统高效运行。

High degree of automation, easy handling, real-time monitoring on parameters of pressure and vibration; achieve variable working conditions of the compressor by frequency control to ensure the high efficient running of the system.

高速直驱蒸汽压缩机

HIGH-SPEED DIRECT DRIVE STEAM COMPRESSOR

01 油膜高速直驱蒸汽压缩机
Oil-film High-speed Direct Drive Steam Compressor



油膜高速直驱蒸汽压缩机是采用高效永磁电机的一种透平设备，主要结构为叶轮直接安装在电机轴伸端，转子部分由油膜轴承直接支撑，不需要增速箱及联轴器，实现由高速电机直接驱动。

Oil-film high-speed direct drive steam compressor is a kind of turbine equipment using high efficiency permanent magnet motor. Its main structure is that the impeller is directly installed at the shaft extension end of the motor, and the rotor is directly supported by oil film bearing, to realize direct drive by high-speed motor, without speed increasing box and coupling.

性能范围Performance Range

该产品适用流量范围1.5-15t/h，温升8-20℃，最大功率500kW。

The product is suitable for flow range of 1.5-15t/h, temperature rise of 8-20℃ and maximum power of 500kW.

产品特点Product Features

01
省去了齿轮增速装置，整机效率提高10%-20%。
The gear speed increasing device is omitted, and the efficiency of the whole machine is improved by 10%-20%.

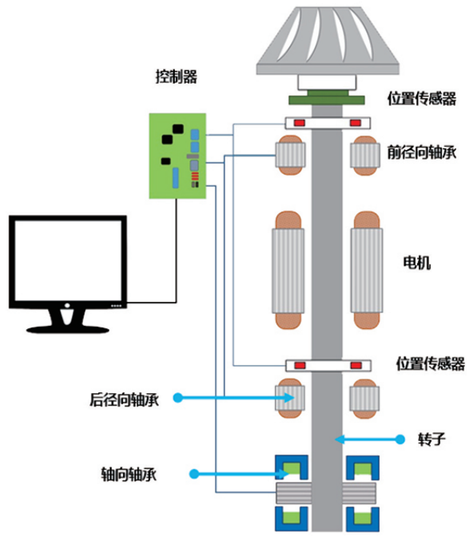
02
结构更加紧凑，占地面积为齿轮增速型机组的1/2。
The structure is more compact, and the occupied area is 1/2 of that of the gear speed-increasing unit.

03
柔性轴系设计，适用参数范围更广。
Flexible shafting design, wider range of applicable parameters.

04
NVH特殊设计，使得噪声和振动达到极低水平。
NVH is specially designed to make noise and vibration reach extremely low level.

05
整机载荷为齿轮增速的50%，土建要求、成本低。
The load of the whole machine is 50% of the gear speed increase, which is required by civil engineering and has low cost.

02 磁悬浮蒸汽压缩机
Magnetic Steam Compressor



磁悬浮蒸汽压缩机是采用磁悬浮轴承透平设备的一种，其主要结构为叶轮直接安装在电机轴伸端，而转子被垂直悬浮于主动式磁性轴承上，不需要增速箱及联轴器，实现由高速电机直接驱动。

The magnetic steam compressor is a kind of turbine equipment using magnetic bearing. Its main structure is that the impeller is directly mounted onto the motor shaft extension end, and the rotor is suspended vertically on the active magnetic bearing, without speed increasing box and coupling. It is directly driven by a high-speed motor.

产品特点Product Features

01 安全。三重保护，远程24h在线监测。
Safe. Triple protection, 24 hours remote online monitoring.

02 节能。比传统单级高速蒸汽压缩机整机效率高20%-35%。
Energy saving. Compared with the traditional single-stage high-speed steam compressor, the overall efficiency is 20%-35% higher.

03 安静。噪音比传统单级高速蒸汽压缩机低30-40dB。
Quiet. The noise is 30-40dB lower than the traditional single-stage high-speed compressor.

04 洁净。不使用润滑油，告别油污，土壤零污染。
Clean. No lubrication oil, no oil pollution and zero soil pollutionNo lubrication oil is used, thus no oil pollution and zero soil pollution.

05 紧凑。是同等参数传统单级高速蒸汽压缩机占地面积的1/5左右、体积的1/10左右，节省更多的空间。
Compact. It can save more space as it is about 1/5 of the area and 1/10 of the volume of the traditional single-stage high-speed steam compressor with the same parameters.

机型 Model	入口温度℃ Inlet Temp. ℃	温升16℃ Temp. rise16℃	温升17℃ Temp. rise17℃	温升18℃ Temp. rise18℃	温升19℃ Temp. rise19℃
		流量t/h Flow t/h			
KPM2	80	1.45~1.69	1.52~1.76	1.59~1.83	1.665~1.89
	85	1.715~2.01	1.795~2.09	1.88~2.17	1.965~2.2
	90	2.015~2.37	/		
KPM3	80	2.24~2.62	2.27~2.65	2.295~2.685	2.325~2.715
	85	2.7~3.155	2.735~3.195	2.765~3.23	2.8~3.27

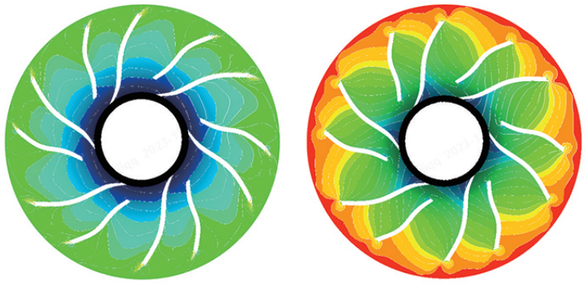
标准磁悬浮机组
Standard magnetic levitation compressor

研发能力

DEVELOPMENT ABILITY

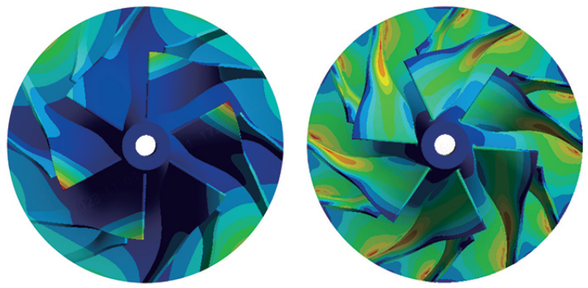
01 CFD性能分析
CFD Performance Analysis

压缩机部件设计基于CFD技术的仿真分析，在此基础上进行优化设计。
The components of compressor are designed and optimized based on the simulated analysis of CFD technology.



02 有限元分析
Finite Element Analysis

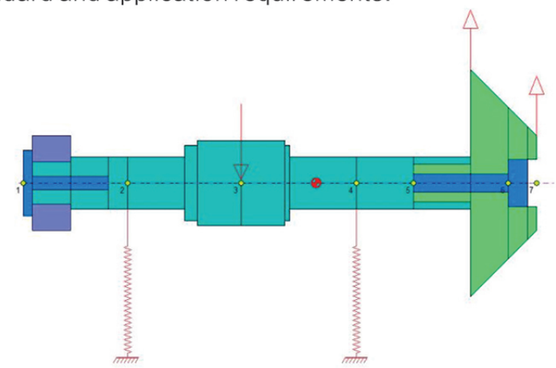
对叶轮强度和模态进行有限元分析并优化，保证其能够长期稳定工作。
Finite element method is used to analyze and optimize the strength and mode of impeller to ensure its long-term stability.



03 转子动力学分析
Rotor Dynamics Analysis

高速轴工作在一二阶临界转速之间，符合API617标准中关于临界转速与工作转速之间关系的规定，转子总成设计满足标准和使用要求。

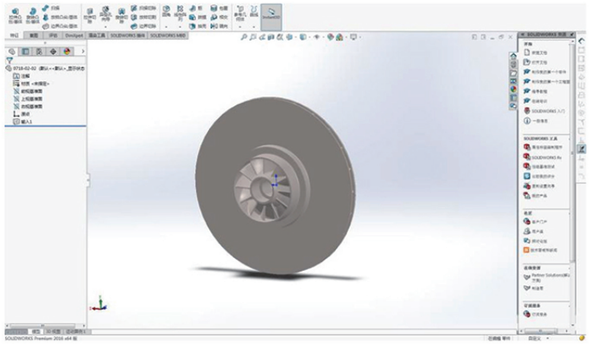
The high-speed shaft runs between the critical speeds of rotation of stage I and II, which meet the provisions on the relationship between critical speed of rotation and work speed of rotation stated in API617 standard, and the design of rotor assembly meets the standard and application requirements.



04 软件平台
Software Platform

采用三维设计软件为用户的产品设计及加工过程提供了数字化造型和验证手段。

Provide digitized modeling and verification means for the users' product design and processing.



05 压缩机研发系统性能验证平台
Performance Verification Platform For Compressor R&D System

数字化设计完成并数值验证后，将通过2000kW大型压缩机性能试验装置进行实物验证。

After digital design and numerical validation, physical verification will be carried out through a 2000kW large-scale compressor performance testing device.

06 智能服务
Intelligent Services

物联网云系统服务 IOT Cloud System Services

实现对设备运行状况的远程检测、故障预警及会诊，确保您的设备安全稳定运行。

Remote detection of equipment operating conditions, fault warning and consultation to ensure the safe and stable operation of your equipment.

六大亮点 Six Advantages

售后服务 Aftersale Service

我们坚持以“更精准、更全面”为宗旨的“智能服务”，在国内设有十三个营销服务中心，并有覆盖全球的销售和服务网络。

We insist on "intelligent service" with the purpose of "more accurate, more comprehensive", and have 13 marketing service centres in China, as well as a sales and service network covering the whole world.

售后服务人员全员持有护照，及时响应海外维修任务，为您提供项目执行过程中的24小时全天候服务。

All after-sales service personnel hold passports to respond to overseas maintenance tasks in a timely manner and provide you with 24-hour round-the-clock service during the execution of the project.

“1191”服务承诺：1分钟内反馈现场问题；1小时内对服务需求做出响应；9小时内回复解决方案；1天内人员到现场。

“1191”Service Commitment:Feedback of on-site problems within 1 minute; Respond to the service demand within 1 hour; Reply solution within 9 hours; Personnel to the site within 1 day.

售后服务热线：400-625-2668
After-sales service hotline: 400-625-2668

客户视窗Client Windows

为客户提供在线选型、查看制造进度、行业解决方案等服务。

Provide customers with online selection, viewing manufacturing progress, industry solutions and other services.

主要应用领域

MAIN APPLICATION AREAS

01

热泵精馏。

Heat pump distillation.

02

余热回收。

Waste heat recovery.

03

废水处理：工业废水处理、锂电废水处理、废水循环再利用、垃圾渗滤液处理、垃圾焚烧飞灰浸取液钠钾分离等。

Environmental protection field: industrial wastewater treatment, lithium battery wastewater treatment, wastewater recycling, landfill leachate treatment, waste incineration fly ash leachate sodium and potassium separation, etc.

04

锂电：盐湖提锂、磷酸铁装置及三元前驱体废水处理、锂电池拆解废水处理、电镍大循环等各种工艺装置。

Lithium-Ion battery industry: various process devices such as salt lake lithium extraction, iron phosphate device, ternary precursor wastewater treatment, lithium battery disassembly wastewater treatment, and nickel battery circulation.

05

新能源：光伏废水处理、多晶硅废水处理等。

New energy industry: photovoltaic wastewater treatment, polycrystalline silicon wastewater treatment, etc.

06

食品与饮料：氨基酸（丙氨酸）等浓缩提取、糖液浓缩干燥、饮料果酱浓缩等。

Food&beverage industry: concentration and extraction of amino acids (alanine), concentration and drying of sugar liquid, concentration of beverage jam, etc.

07

医药：中西药生产工艺过程中的蒸发、浓缩、结晶和干燥等。

Pharmaceutical industry: evaporation, concentration, crystallization and drying in the production process of Chinese and Western medicines.

08

化工：已内酰胺工艺聚合装置、聚乳酸PLA装置、尼龙66生产装置、螯合剂蒸发结晶、甘露醇浓缩、元明粉蒸发结晶、有机物浓缩结晶、香料提纯、化工原料生产等。

Chemical industry: caprolactam process polymerization device, polylactic acid PLA device, nylon 66 production device, chelating agent evaporation crystallization, mannitol concentration, anhydrous sodium sulfate evaporation crystallization, organic matter concentration crystallization, fragrance purification, chemical raw material production, etc.

09

冶金：烧结脱硫废水处理、焦化废水处理、提钒废水处理、冶炼废水处理等。

Metallurgical industry: treatment of sintering desulfurization wastewater, coking wastewater, vanadium extraction wastewater, smelting wastewater, etc.

10

电力：电站脱硫废水处理、锅炉清洗废水处理等。

Power industry: Treatment of desulfurized wastewater from power stations, etc.

11

核工业。

Nuclear industry.

典型案例

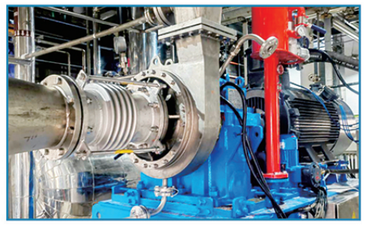
TYPICAL CASES

热泵精馏 Heat pump distillation

某甲醇精馏装置用甲醇压缩机
Methanol compressor for methanol distillation unit

蒸发量： 5 t/h
Evaporation capacity: 5 t/h

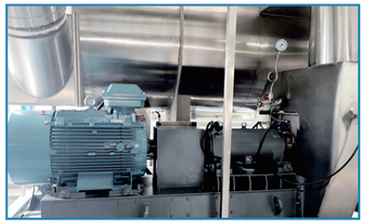
行业首个应用于热泵精馏领域的蒸汽压缩机业绩
Industry's first steam compressor performance in the field of heat pump distillation



某维生素项目用甲醇压缩机
Methanol compressor for a certain vitamin project

蒸发量： 6.68 t/h
Evaporation capacity: 6.68 t/h

医药 Pharmaceutical industry



某西药生产低温浓缩项目蒸汽压缩机
Low temperature concentration of Western medicine

蒸发量： 10 t/h
Evaporation capacity: 10 t/h

某微生物发酵浓缩项目蒸汽压缩机
Microbial fermentation concentration

蒸发量： 11 t/h
Evaporation capacity: 11 t/h

余热回收 Waste heat recovery

某热电厂末端蒸汽管道增压
Boosting of steam pipeline at the end of a thermal power plant

蒸发量： 56 t/h
Evaporation capacity: 56 t/h

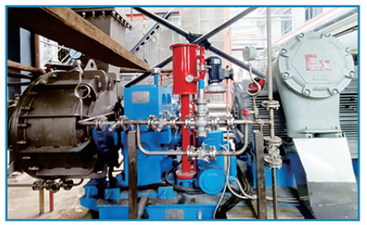
某造纸工艺段余热回收项目蒸汽压缩机
Waste heat utilisation of low-grade steam

蒸发量： 11.5 t/h
Evaporation capacity: 11.5 t/h

某多晶硅闪蒸罐高温水余热利用（闪蒸+蒸汽压缩机）
High temperature water waste heat utilization of a polycrystalline silicon flash tank (flash+steam compressor)

蒸发量：30 t/h
Evaporation capacity: 30 t/h

两台串联、二级升温
Two series connected, two-stage heating

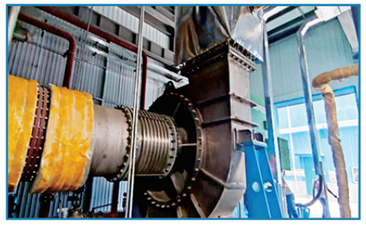


某酒厂蒸发罐余热回收蒸汽压缩机
A company's energy-saving renovation project waste heat recovery steam compressor

蒸发量：10 t/h +10.4t/h，16℃+17℃
Evaporation capacity: 10 t/h +10.4 t/h, 16℃+17℃

两台串联
Two stages connected in series

废水处理 Environmental protection field

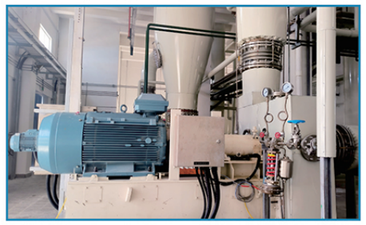


某制药废水蒸发结晶项目蒸汽压缩机
Pharmaceutical wastewater evaporation crystallisation project

蒸发量： 104 t/h
Evaporation capacity: 104 t/h

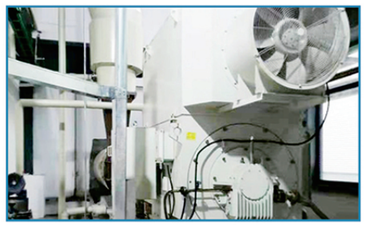
某制药废水处理蒸汽压缩机
Steam compressor for pharmaceutical wastewater treatment

蒸发量：19 t/h
Evaporation capacity: 19 t/h



某煤矿矿井水深度处理项目蒸汽压缩机
Coal mine wastewater treatment

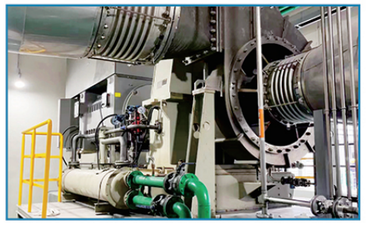
蒸发量： 30 t/h
Evaporation capacity: 30 t/h



某水泥窑协同处置垃圾焚烧飞灰浸取液钠钾分离项目蒸汽压缩机
Steam compressor for collaborative disposal of waste incineration fly ash leaching solution sodium and potassium separation project in a cement kiln

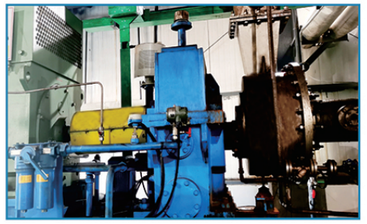
蒸发量： 41 t/h
Evaporation capacity: 41 t/h

锂电 Lithium-Ion battery industry



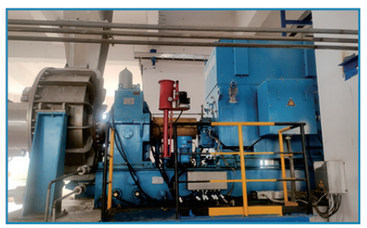
某电镍大循环项目硫酸镍蒸发浓缩装置蒸汽压缩机
Steam compressor for nickel sulfate evaporation and concentration unit of a certain electric nickel large cycle project

蒸发量： 81 t/h
Evaporation capacity: 81 t/h



某盐湖提锂项目蒸汽压缩机
Steam compressor for a salt lake lithium extraction project

蒸发量：48 t/h
Evaporation capacity: 48 t/h



某电池新材料前驱体项目中水回用装置蒸汽压缩机
Steam compressor for water reuse device in a battery new material precursor project

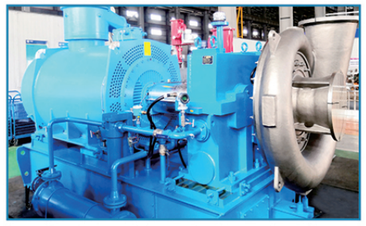
蒸发量： 51 t/h
Evaporation capacity: 51 t/h

某三元前驱体废液处理项目蒸汽压缩机
Ternary precursor waste liquid treatment project

蒸发量： 45 t/h
Evaporation capacity: 45 t/h

某锂电池生产废水处理项目
Steam compresser for the treatment of the wastewater in a lithium battery project

蒸发量： 56 t/h
Evaporation capacity: 56 t/h



某锂电池拆解废水处理蒸汽压缩机
Steam compressor for the treatment of wastewater from dismantling a lithium battery

蒸发量：11 t/h
Evaporation capacity: 11 t/h

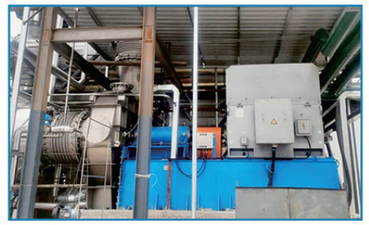
新能源 New energy industry

某高纯晶硅项目污水处理装置蒸汽压缩机
Steam compressor of the sewage treatment device in a polysilicon project

蒸发量：65.5 t/h+66.5 t/h
Evaporation capacity: 65.5 t/h+66.5 t/h

两台串联
Two series connected

食品与饮料 Food&beverage industry

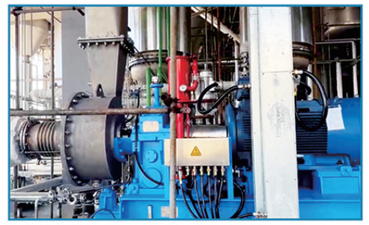


某番茄酱浓缩项目蒸汽压缩机
Steam compressor for a tomato sauce concentration project

蒸发量： 50 t/h
Evaporation capacity: 50 t/h

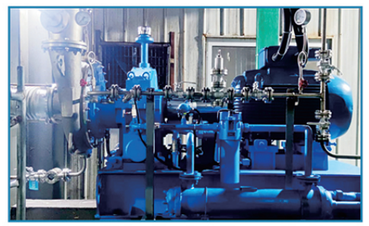
某饲料添加剂蒸发浓缩项目蒸汽压缩机
Steam compressor for a feed additive evaporation and concentration project

蒸发量： 4 t/h
Evaporation capacity: 4 t/h



某三氯蔗糖（无糖可乐）蒸发结晶蒸汽压缩机
Evaporation crystallization of sucralose (sugar free cola)

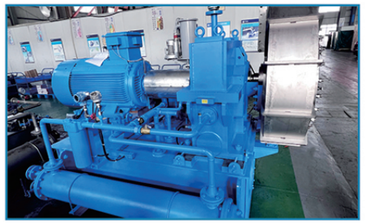
蒸发量： 8 t/h
Evaporation capacity: 8 t/h



某果酱浓缩项目蒸汽压缩机
Steam compressor for jam concentration project

蒸发量： 2 t/h
Evaporation capacity: 2 t/h

化工 Chemical industry



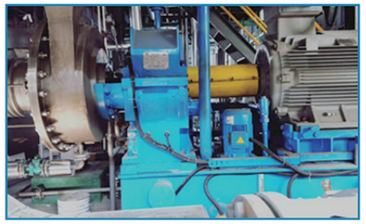
某氰化钠处理蒸汽压缩机
Steam compressor for sodium cyanide treatment

蒸发量：4.5 t/h
Evaporation capacity: 4.5 t/h

某己内酰胺聚合装置蒸汽压缩机
Steam compressor of a caprolactam polymerization unit

蒸发量：90.4 t/h
Evaporation capacity: 90.4 t/h

两台串联
Two stages connected in series



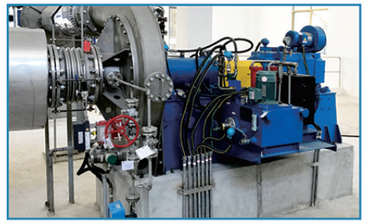
某三氯化铁蒸发结晶工艺蒸汽压缩机
High temperature rise steam compressor of ferric chloride evaporation and crystallization process of a fine chemical company

蒸发量：3 t/h
Evaporated capacity: 3 t/h

某螯合剂浓缩工艺蒸汽压缩机
High temperature rise steam compressor for the chelating agent concentration project of a chemical plant

蒸发量：22 t/h
Evaporated capacity: 22 t/h

电力 Power industry

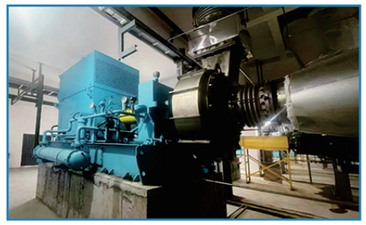


某电站脱硫废水零排放项目蒸汽压缩机
Steam compressor for zero discharge project of desulfurization wastewater in a power plant

蒸发量：8.5 t/h
Evaporation capacity: 8.5 t/h

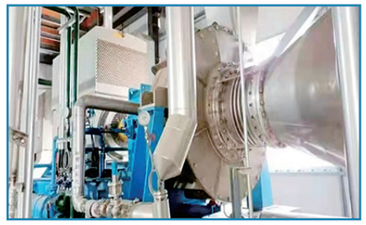
两台串联
Two stages connected in series

冶金 Metallurgical industry



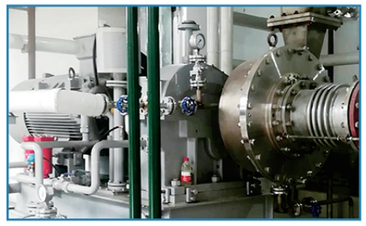
某稀土回收废水处理项目蒸汽压缩机
Rare earth recycling wastewater treatment

蒸发量：22.83 t/h
Evaporation capacity: 22.83 t/h



某提钒废水处理项目蒸汽压缩机
Vanadium wastewater treatment

蒸发量：42 t/h
Evaporation capacity: 42 t/h



某焦化废水零排放项目蒸汽压缩机
Steam compressor for a zero discharge project of coking wastewater

蒸发量：2.7 t/h
Evaporated capacity: 2.7 t/h

合作伙伴

COOPERATIVE PARTNERS

中国石油
中国石化 SINOPEC
中国海油 CNOOC
LUXI 鲁西化工集团股份有限公司
BLUESTAR 中国蓝星
永荣控股 EVERSUN HOLDINGS
RISUN 旭阳集团
诚信 CHENGXIN
赣锋锂业 GanfengLithium
天岩集团 TIANJI GROUP
BAOWU
建龙集团 JIANLONG GROUP
荣程联合 ROCKCHECK
国家能源集团 CHN ENERGY
中国华电 CHINA HUADIAN
中国轻工业长沙工程有限公司 CHINA CEC ENGINEERING CORPORATION
华友钴业 HUAYOU COBALT
长沙矿冶研究院有限责任公司 CHANGSHA RESEARCH INSTITUTE OF MINING AND METALLURGY CO.,LTD
瑞升华 SUNEVAP
MYANDE
神农股份 SENON
JINGYU 晶宇环境
HORIZON
BGT
环诺蒸发器 VNOR EVAPORATOR

迈源科技 MY EVAPORATOR
洁绿 Jeegreen
TYEP 天源环保
德创环保 TUNA CORPORATION
久吾高科 JIUWU HI-TECH
大力神科技集团 DLS－Technology Group
WELLE 维尔利 您的环境·我的责任
光大环境 EVERBRIGHT ENVIRONMENT
中煤集团
CATL 宁德时代
藏格控股股份有限公司
ZABUYE LITHIUM
云天化集团 YUNTIANHUA GROUP
TINCI 天赐
ISKY 埃索凯
BYD
融通材料 RT Materials
enco 恩创机械 ENCO MACHINERY
其亚集团
合盛硅业 HOSHINE SILICON
SG 南玻集团
XYG 信义玻璃
中天合创
中国神华神东 CHINA SHENHUA SHENDONG
惠宏科技 HUIHONG TECHNOLOGY
贵州习酒 GUIZHOU XIJIU
远航酒业集团 Yuan Hang Distillery Group Limited
聯邦製藥 UNITED LABORATORIES
AHB 华恒生物 Huaheng Biotech
Angel 安琪
七星柠檬 LEMON STAR
益海嘉里
花园集团 HUAYUAN GROUP
HBLN
金赛科技 JINZHAOKEJI
云投林纸 YUNNAN INVESTMENT FORESTRY AND PULP
UniMn
源泰

诚信为本
Honest and trustworthy

专注专业
Concentrated and professional

利他共生
Altruism and mutualism