



Yixing Aipu Air System Equipment Co., Ltd
aipukqdl.com



Customized Design and Energy-Saving Performance Mechanical Vapor Recompression for Steam Compressors

Our Product Introduction

Basic Information

- Place of Origin: China
- Brand Name: Aipu
- Model Number: CBV Series
- Minimum Order Quantity: 1
- Price: Negotiable
- Packaging Details: Export Standard Packaging
- Payment Terms: T/T, L/C



Product Specification

- Material: Stainless Steel
- Models: Vapour Compressor
- Brand Name: Aipu

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Customized Design and Energy-Saving Performance Mechanical Vapor Recompression for Steam Compressors

Product Features

High Efficiency Advanced Impeller Profile Customized Design , Excellent Power- saving Performance

The impeller is designed by three dimensional flow theory, and the full three dimensional flow simulation. The performance of the steam compressor is predicted by flow analysis technology, and the adiabatic efficiency of the steam compressor can reach about 85%.

The impeller is customized design according to the working parameters of the user to ensure that the working parameters required by the user are in the impeller efficient area, which is more energy saving .

Wide adjust range , stable vacuum degree

Evaporate capacity is wide and can be adjusted by two modes : VFD , Evaporate Temperature ; Anti - surge device is provided to avoid surge problem effectively .

Compact Design , Less Footprint

The overall skid - mounted structure is adopted . Centrifugal steam compressor body is directly connected with gear box casing. The lubricating oil system and the motor are arranged on the common base which serves as the oil tank . Less weight and less footprint .

Low noise level

Through the advanced design technology of spiral case and impeller , the discrete noise and wide - band noise are suppressed, and the active control of aerodynamic noise is realized . More easily decayed .

Less wearing parts , convenient installation and maintenance

Less wearing parts, less site maintenance , easy & fast installation .

High degree of intelligence

The bearing's vibration, temperature, the inlet and outlet pressure, temperature , anti - surge control, start - stop interlock protection, fault alarm ,lubricating oil pressure , oil temperature and a series of monitoring and control system are controlled by PLC, and real - time transmission to the " Zhanggu Cloud * intelligent cloud platform, users can real- time monitoring equipment running status with project engineer.

Main structure



Impeller

The high efficiency impeller is designed by three dimensional flow theory which is calibrated by static and static balance after strict precision machining and passed the over speed test of 1.15 times the rated speed ensures the impeller strength . In order to meet the requirement of different working conditions of steam compressor, the impeller material can be titanium , duplex stainless steel and other materials .



Volute Casing

Using circular section volute, volute wall profile is designed to be log spiral lines, in line with the law of airflow movement, less impact on the blower . So the blower's flow efficiency is high, small vibration , low noise . Volute casing material can be 304,316L,2205,2507 stainless steel according to different working conditions .



High- speed Rotor

The high- speed rotor is consists of the impeller, the high - speed gear and the high - speed shaft. Impeller and high - speed shaft are connected by rod and the torque is transmitted by end surface pin or tooth . The dynamic balancing test accords to the international standards and the precision could reach G1 grade to ensure the operation to be smooth and reliable .



Gear

The acceleration gear pair adopts the involute tooth profile. The surface of gearwheel and pinion gets through the grinding and nitride- harden treatment to maintain the high speed stable operation ,low vibration and low noise . The lifetime can be 20 years .



Bearing

The high - speed shaft support. composed by many flexible pads , adopts tilting pad journal bearing . The pads could deflex around the fulcrum, its anti - vibration performance and automatically adjusting ability according to the variation of load and speed are both excellent .

Lubrication System

The lubrication system is consists of the oil tank and the oil pipeline . The pedestal doubles as a oil tank, the immersion - type electric heater and temperature control switch are both included in the oil tank. Lubrication piping is composed by : master oil pump , auxiliary oil pump, binocular filter and heat exchanger. The main oil pump would be driven by the low - speed gear and it supplies the pre- lubrication to gear and bearing with certain pressure when the units operate normally . The electric pump would supply the pre- lubrication before the units start and keep the oil pressure still under the emergency and downtime. The electric pump also plays a role of stand- by oil pump . The oil filter with double cylinder is high - precision .The pressure difference alarm device on filter is also equipped .



Seal

According to the requirements of working conditions, diverse options of sealing are available for the steam compressor , the standard options : labyrinth seal with steam purging, carbon ring sealing with steam purging ,dry gas seal , etc .



Sealing Steam Charging Device

Sealing Steam Charging Device is used for negative pressure or normal working condition steam compressor, it charges the superheated steam into shaft seal to prevent the air leakage into compressor. The steam charging device includes steam pressure relief valve, pressure detection device, stainless steel filter and etc. For steam compressors under positive pressure conditions, pressure relief methods such as blow-off or steam extraction are usually used to prevent exposed steam from entering the gearbox, resulting in emulsification of lubricating oil.



Desuperheating Water Spray Device

Annular distributed multiple high-pressure atomizing nozzles improve the distribution uniformity of water mist in the pipe and increase the atomization efficiency. When any individual nozzle is blocked or other abnormal conditions, the remaining nozzles can stil ensure sufficient spray volume. The inlet is equipped with a stainless steel pressure relief valve (manual or automatic option) and filter.



Drainage Tank

Used for collecting and discharging the liquid water generated from blower unit. It can be designed negative pressure, normal pressure or positive pressure three modes as per actual requirement. Tank body is equipped with inlet valve (manual or automatic option), sight glass, liquid level gauge (local or remote transmission) and drainage valve and etc accessories. If it is equipped with automatic drainage valve or drainage pump (negative pressure condition) and remote transmission liquid level gauge, automatic drainage, real-time monitoring of liquid level, abnormal alarm and other functions can be realized.

Synchronous Motors And Drives



Motor

Recommend to use permanent magnet synchronous motor of high efficiency meets the grade 1 energy efficiency grade of GB30253-2013 standard . Its rated operating efficiency is 94.5-97%,4-6% higher than asynchronous motor . Simple structure , smaller size, lower noise , better energy saving performance .

Monitoring And Control System



The monitoring and control system are designed for protecting running of high - speed centrifugal blower . The startup is provided with the mode of interlock , anti - surge control ,the accessorial pump automatic start & stop according to the oil pressure , protection for over high bearing temperature and vibration . There are oil pressure sensors on oil - supplying pipeline, oil temperature sensors following oil coolers, temperature sensors and vibration sensors on high speed sliding bearings . The inlet and outlet pipeline are equipped with primary & secondary meters and transmitter to measure air temperature & pressure , so that, it can monitor the parameters real - time, to ensure the safe , stable and reliable operation of the blower .

Choose steam compressors for an efficient, reliable, and quiet steam management solution that meets the demands of modern industrial settings.

Product Sizing Data Table

单级压缩机 Single Stage Compressor							
型号	进口压力 MPaA	进口温度℃	流量 t/h	出口压力 MPaA	总压比	轴功率 kW	电机功率 kW
CCV5-0.6/0.8	0.6	158.9	5	0.8	1.33	118	132
CCV5-0.6/0.9	0.6	158.9	5	0.9	1.50	168	200
CCV5-0.6/1.0	0.6	158.9	5	1.0	1.67	218	250
CCV10-0.6/0.8	0.6	158.9	10	0.8	1.33	216	250
CCV10-0.6/0.9	0.6	158.9	10	0.9	1.50	310	355
CCV10-0.6/1.0	0.6	158.9	10	1.0	1.67	398	450
CCV10-0.6/1.1	0.6	158.9	10	1.1	1.83	484	560
CCV20-0.6/0.8	0.6	158.9	20	0.8	1.33	398	450
CCV20-0.6/0.9	0.6	158.9	20	0.9	1.50	572	630
CCV20-0.6/1.0	0.6	158.9	20	1.0	1.67	737	800
CCV20-0.6/1.1	0.6	158.9	20	1.1	1.83	893	1000
CCV20-0.6/1.2	0.6	158.9	20	1.2	2.00	1044	1250
CCV50-0.6/0.8	0.6	158.9	50	0.8	1.33	929	1000
CCV50-0.6/0.9	0.6	158.9	50	0.9	1.50	1333	1600
CCV50-0.6/1.0	0.6	158.9	50	1.0	1.67	1712	2000
CCV50-0.6/1.1	0.6	158.9	50	1.1	1.83	2077	2250
CCV50-0.6/1.2	0.6	158.9	50	1.2	2.00	2427	2800
CCV100-0.6/0.8	0.6	158.9	100	0.8	1.33	1812	2000
CCV100-0.6/0.9	0.6	158.9	100	0.9	1.50	2606	2800
CCV100-0.6/1.0	0.6	158.9	100	1.0	1.67	3347	3550
CCV100-0.6/1.1	0.6	158.9	100	1.1	1.83	4054	4500
CCV100-0.6/1.2	0.6	158.9	100	1.2	2.00	4725	5000

双级压缩机 Double Stage Compressor								
型号	进口压力 MPaA	进口温度℃	进口流量 t/h	出口流量 t/h	出口压力 MPaA	总压比	轴功率	电机功率
CCV5-0.3/0.6-2	0.3	133.6	5	5.2	0.6	2.00	260	315
CCV5-0.3/0.8-2	0.3	133.6	5	5.2	0.8	2.67	384	450
CCV5-0.3/0.9-2	0.3	133.6	5	5.3	0.9	3.00	442	500
CCV10-0.3/0.7-2	0.3	133.6	10	10.4	0.7	2.33	604	710
CCV10-0.3/0.9-2	0.3	133.6	10	10.5	0.9	3.00	814	900
CCV10-0.3/1.1-2	0.3	133.6	10	10.5	1.1	3.67	991	1120
CCV20-0.3/0.7-2	0.3	133.6	20	20.9	0.7	2.33	1137	1250
CCV20-0.3/0.9-2	0.3	133.6	20	21.0	0.9	3.00	1527	1800
CCV20-0.3/1.1-2	0.3	133.6	20	21.1	1.1	3.67	1856	2000
CCV20-0.3/1.2-2	0.3	133.6	20	21.1	1.2	4.00	2009	2250
CCV50-0.3/0.7-2	0.3	133.6	50	52.2	0.7	2.33	2767	3150
CCV50-0.3/0.9-2	0.3	133.6	50	52.6	0.9	3.00	3701	4000
CCV50-0.3/1.1-2	0.3	133.6	50	52.7	1.1	3.67	4483	5000
CCV50-0.3/1.2-2	0.3	133.6	50	52.8	1.2	4.00	4857	5600

三级压缩机Three Stage Compressor								
型号	进口压力 MPaA	进口温度℃	进口流量 t/h	出口流量 t/h	出口压力 MPaA	总压比	轴功率	电机功率
CCV10-0.3/1.2-3	0.3	133.6	10	11.0	1.20	4.00	1035	1250
CCV10-0.3/1.5-3	0.3	133.6	10	11.1	1.50	5.00	1238	1400
CCV10-0.3/1.8-3	0.3	133.6	10	11.1	1.80	6.00	1412	1600
CCV20-0.3/1.4-3	0.3	133.6	20	22.1	1.40	4.67	2224	2500
CCV20-0.3/1.7-3	0.3	133.6	20	22.2	1.70	5.67	2571	2800
CCV20-0.3/2.0-3	0.3	133.6	20	22.3	2.00	6.67	2878	3150
CCV30-0.3/1.4-3	0.3	133.6	30	33.1	1.40	4.67	3262	3550
CCV30-0.3/1.7-3	0.3	133.6	30	33.3	1.70	5.67	3771	4000
CCV30-0.3/2.0-3	0.3	133.6	30	33.4	2.00	6.67	4221	4500

Note: The above design parameter range is for reference only. For those outside this range, please consult our company for details.

Performance Features

High Temperature Adaptability: Capable of handling high temperature vapours for industrial applications requiring high temperature compression.

Centrifugal Compressor Design: Centrifugal design for high efficiency and compression capacity.

Stable operation: Designed to ensure stable performance and high efficiency over long periods of operation.

Abrasion and corrosion resistant: Manufactured with high temperature and corrosion resistant materials to withstand harsh operating environments.

Energy saving and environmental protection: Adopting advanced energy-saving technology to comply with environmental standards and reduce energy consumption.

Reliability: Designed with long-term reliability and safety in mind, reducing the need for maintenance.

Intelligent control: Equipped with advanced intelligent control system to monitor and regulate the compressor's operating status and improve operating efficiency.

First-class lean manufacturing and testing base

We has built laboratories, R & D buildings, processing work-shops, etc., with internationally advanced and China leading high-precision processingequipment.



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