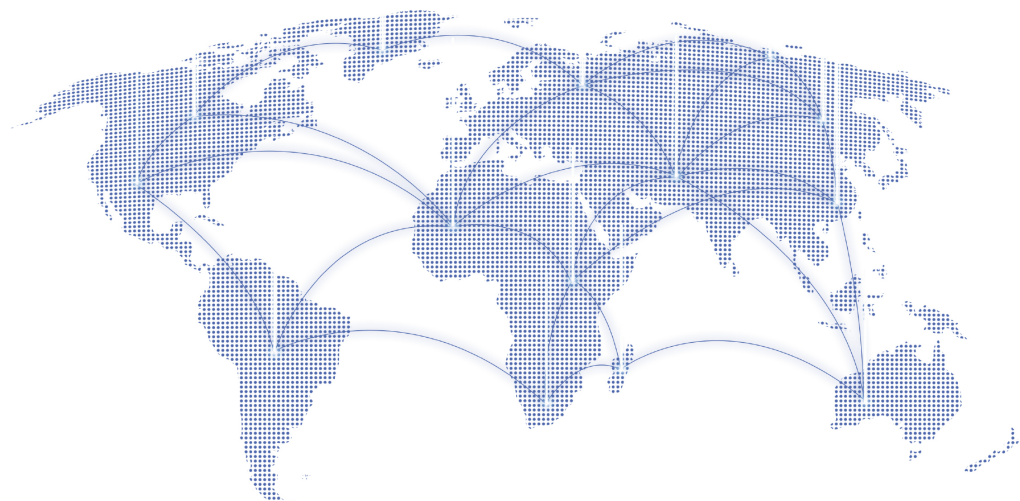




PSA变压吸附制氮机

PSA Pressure Swing Adsorption Nitrogen Generator



冀气(河北)净化设备有限公司

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JICH (Hebei) Purification Equipment Co., Ltd

Precision leads to excellence; A promise made is a promise kept.

公司简介

COMPANY PROFILE

JiQi (Hebei) Purification Equipment Co., Ltd. specializes in the production of gas separation equipment and purification equipment, design, sale, construction and of electromechanical complete equipment, etc. The company is located in Shijiazhuang City, Hebei Province.

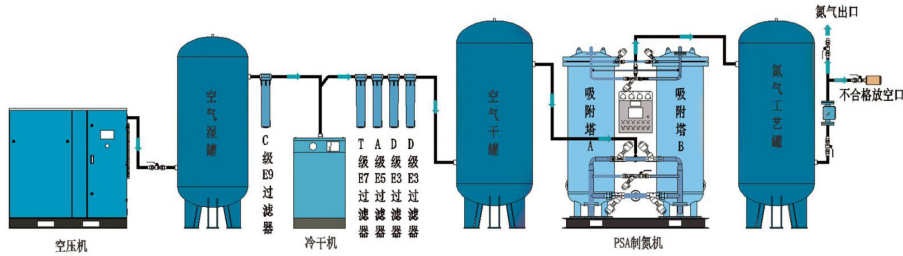
JiQi is dedicated to providing gas product users with the most suitable and comprehensive gas usage solutions to ensure customers achieve the best economic benefits. Meanwhile we are committed to manufacturing all products with precision, ensuring the highest level of reliability and cost-effectiveness. Our products are widely used in industries such as aviation/apace, petrochemicals/natural gas, coal mines, rubber/tires, food and beverage, glass, healthcare, metals (heat treatment, smel), electronics, semiconductors, and laser equipment.

The company adheres to the business philosophy of "Precision leads to excellence, integrity leads to achievement". We are committed to the continuous pursuit and goal of, responsibility, innovation, and service, truly creating value for customers.



制氮系统配置图

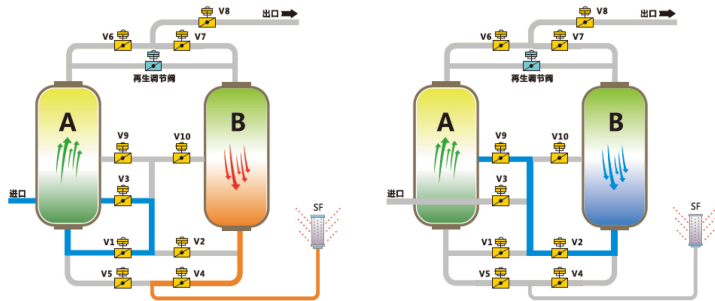
Configuration Diagram Of Nitrogen Generation System



制氮工作原理

Working Principle Of Nitrogen Generation

The PSA nitrogen generator operates by alternating between two pressure vessels filled with carbon molecular sieves, which are specialized adsorbents for oxygen. Compressed air is introduced into one of the vessels, referred to as A, where oxygen molecules are adsorbed by the carbon molecular sieves, allowing nitrogen to pass through be collected. Meanwhile, the other vessel, B, undergoes a regeneration process where the adsorbed oxygen molecules are purged into the atmosphere using a small amount of nitrogen. Once the adsorption vessel becomes saturated, the regeneration vessel is ready, and the system switches to B for adsorption while A undergoes regeneration. Process is controlled by a PLC controller to maintain the desired purity of the nitrogen output.



吸附过程
Adsorption Process

再生过程
The process of regeneration

性能参数

Performance Parameter

Nitrogen Production: 1-2000Nm³/h

Nitrogen Purity: 95%-99.9995%

Nitrogen Gas Pressure: 0.1-0.6MPa (Adjustable)

Nitrogen Dew Point: ≤ -40°C

Adsorption Switching Cycle: 45-60S

Voltage / Frequency: 220V/50HZ

Environmental Temperature: ≤ 40°C

Air Source Pressure: 0.65-0.8MPa



产品特性

Product Characteristics



安全
Safety



稳定
Stable



节能
Energy Saving

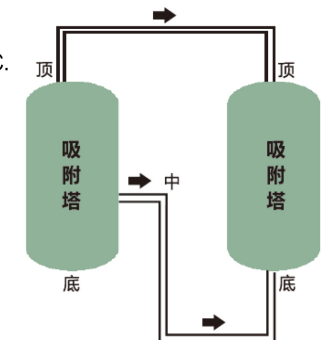


高性能
High Performance



性价比
Cost Performance

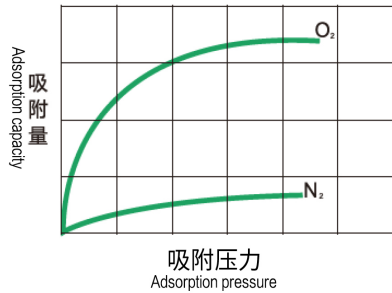
- Automatic on-off switching, achieving automatic control function
- The switching of pneumatic valves is controlled automatically by a PLC.
- Online real-time monitoring of nitrogen purity and flow rate
- Alarm function for substandard nitrogen
- The system will automatically shut down after a prolonged alarm for substandard nitrogen quality.
- Automatic Compaction Device for Carbon Molecular Sieves
- Digital touchscreen displays pressure, purity, flow operation status
- By adopting non-equal potential equalization, the nitrogen recovery rate is increased, and the indirect effect is a 5% reduction in energy consumption



碳分子筛 (CMS)

Carbon Molecular Sieve (CMS)

Carbon molecular sieve is a specially treated activated carbon adsorbent. Due to the smaller size and lighter weight of oxygen molecules compared to nitrogen molecules, they adsorbed onto the surface of the carbon molecular sieve first. Under the conditions of selective adsorption by the adsorbent, impurity components are removed from feed gas under pressure, and these impurities are desorbed under reduced pressure, thereby regenerating the adsorbent. Our company uses two adsorbers, and by cyclically alternating the pressure of each adsorber, we can achieve the continuous separation of gas mixtures



碳分子筛
Carbon molecular sieve

主要零部件

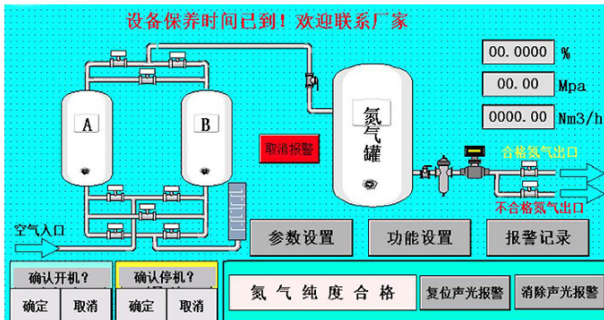
Main Parts

● 智能控制面板

Intelligent Control Panel

Human-Machine Interface Intelligent Control Panel:

Process page, purity, pressure, flow, alarm light information display, time parameter settings, and other information.

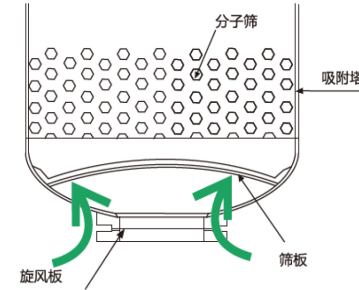


PSA Pressure Swing Adsorption Nitrogen Generator

● 吸附塔结构

Structure Of Adsorption Tower

A divergent cyclone structure is designed at the bottom of the adsorber, with special gas flow diffusion devices to avoid the impact of high gas flow on the molecular sieve, which helps to improve the nitrogen production efficiency and the service life of the carbon molecular sieve. At the same time, the gas diffusion is uniform, which greatly improves the efficiency of molecular sieve usage and reduces energy consumption.



吸附塔底部结构
The structure at the bottom of the adsorption tower

● 压紧装置

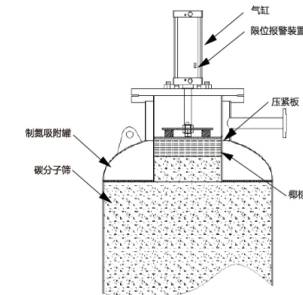
Hold-down Device

Our company employs a cylinder clamping design, which offers the following advantages:

The clamping force of the cylinder is constant and does not change with the stroke;

The stroke of the cylinder can be measured or sensed from the outside, allowing for pre-set alarm points;

The gas required for the cylinder is taken from the separation tower, enabling it to work in synchronization with the separation tower at any time, thus achieving dynamic clamping.



压紧装置结构
Clamping Device Structure

● 气动阀件

Pneumatic Valve

DN15-DN80 :

Equipped with pneumatic Y-type angular seat valves, it consumes less air, has a simple structure, good sealing performance, is easy to install and maintain with a valve seat life of over 3 million cycles, low failure rate, and stable operation.

DN80 以上 :

The use of pneumatic pipeline valves, with an integrated design of the actuator and valve body, ensures a compact installation space (especially suitable for complex systems), with a long lifespan of over one million cycles, minimal pressure loss, and a flow area of over 90%.



apply to DN15-DN80



apply to DN80 the above

● 纯度检测仪

Purity Detector

Automatic nitrogen rejection device:

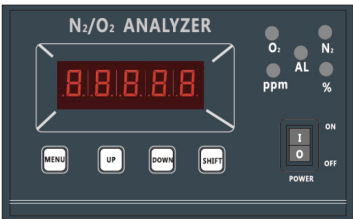
At the outlet of the nitrogen process tank, a nitrogen sampling port is set up, and the nitrogen purity is tested through a nitrogen analyzer.

Characteristics of Nitrogen Oxygen Analyzer:

The probe uses an ion flow oxygen sensor, which is highly sensitive and accurate, with a precision of 0.001%; It can calculate nitrogen concentration based on the oxygen concentration and display it accordingly; If the nitrogen/oxygen concentration deviates from the alarm value, it will trigger an alarm and output alarm switch signal;

The electrode life is over two years, and the probe does not need to be replaced within three years;

It outputs a 4-2mA analog signal, which can transmit data over long distances.



纯度检测仪
Purity Detector

● 部分产品

Some products



3-39 Corresponding parameters	
Model	TCN-SP2
Nitrogen Production / Purity	6Nm³/h-99% 4Nm³/h-99.5% 3Nm³/h-99.9%
Required Air Pressure	0.65-0.8MPa
Nitrogen Pressure	≤ 0.6mpa
Air Consumption	0.2-0.28m³/min
Voltage / Frequency	220V 50/60HZ
PowerDimensions	50W
Size	650*550*1300MM
Weight	120KG



2-59 Corresponding parameters	
Model	TCN-02
Nitrogen Production / Purity	8Nm³/h-99% 6Nm³/h-99.5% 5Nm³/h-99.9% 3Nm³/h-99.99% 2Nm³/h-99.999%
Required Air Pressure	0.65-0.8MPa
Nitrogen Pressure	≤ 0.6mpa
Air Consumption	0.21-0.36m³/min
Main Configuration	Delta PLC/ Airtac Solenoid Valve / Nitrogen Analyzer / Carbon Molecular Sieve CMS280, etc.
Function	Auto Start/Stop / Automatic Venting of Substandard Nitrogen (Optional)
Voltage / Frequency	220V 50/60HZ
PowerDimensions	80W
Size	700*600*1340MM
Weight	150KG



3-59 No Screen Corresponding parameters	
Model	TCN-03
Nitrogen Production / Purity	11Nm ³ /h-99% 9Nm ³ /h-99.5% 7Nm ³ /h-99.9% 4Nm ³ /h-99.99% 3Nm ³ /h-99.999%
Required Air Pressure	0.65-0.8MPa
Nitrogen Pressure	≤ 0.6mpa
Air Consumption	0.3-0.5m ³ /min
Main Configuration	Delta PLC/ Airtac solenoid valve / pneumatic angle seat valve / nitrogen analyzer / carbon molecular sieve CMS280, etc
Function	Auto Start/Stop / Automatic Venting of Substandard Nitrogen (Optional)
Voltage / Frequency	220V 50/60HZ
PowerDimensions	100W
Size	900*750*1330MM
Weight	210KG



3-59 Screen Corresponding parameters	
Model	TCN-03+
Nitrogen Production / Purity	12Nm ³ /h-99% 10Nm ³ /h-99.5% 8Nm ³ /h-99.9% 4Nm ³ /h-99.99% 3Nm ³ /h-99.999%
Required Air Pressure	0.65-0.8MPa
Nitrogen Pressure	≤ 0.6mpa
Air Consumption	0.3-0.5m ³ /min
Main Configuration	Siemens PLC / Kunlun Tongtai touch screen / Airtac solenoid valve / pneumatic angle seat valve / nitrogen analyzer / carbon sieve CMS280, etc.
Function	Auto Start/Stop / Automatic Venting of Substandard Nitrogen (Optional)
Voltage / Frequency	220V 50/60HZ
PowerDimensions	300W
Size	850*850*1480MM
Weight	240KG



5-59 Corresponding parameters	
Model	TCN-05
Nitrogen Production / Purity	20Nm ³ /h-99% 15Nm ³ /h-99.5% 12Nm ³ /h-99.9% 7Nm ³ /h-99.99% 5Nm ³ /h-99.999%
Required Air Pressure	0.65-0.8MPa
Nitrogen Pressure	≤ 0.6mpa
Air Consumption	0.5-1m ³ /min
Main Configuration	Siemens PLC / Kunlun Tongtai touch screen / Airtac solenoid valve / pneumatic angle seat valve / nitrogen analyzer / carbon sieve CMS280, etc.
Function	Auto Start/Stop / Automatic Venting of Substandard Nitrogen (Optional)
Voltage / Frequency	220V 50/60HZ
PowerDimensions	300W
Size	850*850*1480MM
Weight	470KG

设备选型

Equipment Selection

TCN-A 系列制氮机 氮气纯度：99.0%（Nitrogen Purity）					
型号规格 Model	氮气流量 N ₂ (m ³ /h) Nitrogen Production	进口管径 Intel pipe size	出口管径 outel pipe size	外形尺寸 (mm) H*L*W	有效耗气量 (m ³ /min) Effective air consumption
TCN-A15	15	DN15	DN15	1500*850*500	0.66
TCN-A25	25	DN20	DN15	1800*900*600	1.00
TCN-A35	35	DN20	DN15	1900*1000*600	1.33
TCN-A45	45	DN20	DN15	1900*1000*600	1.67
TCN-A50	50	DN25	DN25	2400*1150*700	2.00
TCN-A60	60	DN25	DN25	2400*1150*700	2.33
TCN-A70	70	DN32	DN25	2400*1150*700	2.66
TCN-A90	90	DN32	DN32	2600*1150*800	3.33
TCN-A110	110	DN40	DN40	2600*1200*800	4.00
TCN-A120	120	DN40	DN40	2600*1400*900	4.66
TCN-A140	140	DN40	DN40	2600*1500*900	5.33
TCN-A160	160	DN40	DN40	2750*1600*900	6.00
TCN-A180	180	DN50	DN40	2750*1750*900	6.67
TCN-A220	220	DN50	DN40	2750*1900*1000	8.33
TCN-A260	260	DN50	DN50	2750*2160*1000	10.00
TCN-A310	310	DN65	DN50	2890*2200*1200	11.67
TCN-A350	350	DN65	DN50	2900*2500*1350	13.33
TCN-A400	400	DN65	DN50	2900*2500*1350	15.00
TCN-A440	440	DN65	DN50	2900*2500*1350	16.67
TCN-A480	480	DN80	DN80	2900*2500*1350	18.33
TCN-A530	530	DN80	DN80	2900*2500*1350	20.00

注：本表所列数据以吸附压力0.7MPa(表压)为原料空气，20℃环境温度，相对含湿度80%为设计基准，本样本提供数据仅供参考。
Note: The data listed in this table is based on an adsorption pressure of 0.7MPa (gauge pressure) for the feed air an ambient temperature of 20℃, and a relative humidity of 80% as the design reference. The data provided in this sample is for reference.



TCN-B 系列制氮机 氮气纯度 : 99.5% (Nitrogen Purity)					
型号规格 Model	氮气流量 N ₂ (m³/h) Nitrogen Production	进口管径 Intel pipe size	出口管径 outel pipe size	外形尺寸 (mm) H*L*W	有效耗气量 (m³/min) Effective air consumption
TCN-B12	12	DN15	DN15	1500*850*500	0.66
TCN-B20	20	DN20	DN15	1800*900*600	1.00
TCN-B35	35	DN20	DN15	1900*1000*600	1.67
TCN-B50	50	DN25	DN25	2400*1150*700	2.33
TCN-B60	60	DN32	DN25	2400*1100*700	2.66
TCN-B70	70	DN32	DN25	2600*1150*800	3.33
TCN-B90	90	DN40	DN40	2600*1200*800	4.00
TCN-B100	100	DN40	DN40	2600*1400*900	4.66
TCN-B120	120	DN40	DN40	2600*1500*900	5.33
TCN-B130	130	DN40	DN40	2750*1600*900	6.00
TCN-B150	150	DN50	DN40	2750*1750*900	6.67
TCN-B220	220	DN50	DN40	2750*1900*1000	10.00
TCN-B250	250	DN65	DN50	2890*2200*1200	11.67
TCN-B290	290	DN65	DN50	2890*2200*1200	13.33
TCN-B330	330	DN65	DN50	2890*2300*1200	15.00
TCN-B370	370	DN65	DN50	2900*2500*1350	16.67
TCN-B400	400	DN80	DN65	2900*2500*1350	18.33
TCN-B440	440	DN80	DN65	2900*2500*1400	20.00

注：本表所列数据以吸附压力 0.7MPa(表压) 为原料空气，20℃环境温度，相对含湿度 80% 为设计基准，本样本提供数据仅供参考。
Note: The data listed in this table is based on an adsorption pressure of 0.7MPa (gauge pressure) for the feed air an ambient temperature of 20℃, and a relative humidity of 80% as the design reference. The data provided in this sample is for reference.

TCN-C 系列制氮机 氮气纯度 : 99.9% (Nitrogen Purity)					
型号规格 Model	氮气流量 N ₂ (m³/h) Nitrogen Production	进口管径 Intel pipe size	出口管径 outel pipe size	外形尺寸 (mm) H*L*W	有效耗气量 (m³/min) Effective air consumption
TCN-C10	10	DN15	DN15	1500*850*500	0.66
TCN-C15	15	DN20	DN15	1800*900*600	1.00
TCN-C20	20	DN20	DN15	1900*1000*600	1.33
TCN-C25	25	DN20	DN15	1900*1000*600	1.67
TCN-C30	30	DN25	DN25	2400*1100*700	2.00
TCN-C35	35	DN25	DN25	2400*1100*700	2.33
TCN-C40	40	DN32	DN25	2400*1100*700	2.66
TCN-C50	50	DN32	DN25	2600*1150*800	3.33
TCN-C60	60	DN40	DN40	2600*1200*800	4.00
TCN-C70	70	DN40	DN40	2600*1400*900	4.66
TCN-C80	80	DN40	DN40	2600*1500*900	5.33
TCN-C90	90	DN40	DN40	2750*1600*900	6.00
TCN-C120	120	DN50	DN40	2750*1750*900	8.33
TCN-C150	150	DN50	DN40	2750*1900*1000	10.00
TCN-C170	170	DN65	DN40	2890*2150*1200	11.67
TCN-C200	200	DN65	DN40	2890*2200*1200	13.33
TCN-C220	220	DN65	DN40	2890*2300*1200	15.00
TCN-C250	250	DN65	DN50	2900*2500*1350	16.67
TCN-C270	270	DN65	DN50	2900*2500*1350	18.33
TCN-C300	300	DN80	DN50	2900*2500*1400	20.00

注：本表所列数据以吸附压力 0.7MPa(表压) 为原料空气，20℃环境温度，相对含湿度 80% 为设计基准，本样本提供数据仅供参考。
Note: The data listed in this table is based on an adsorption pressure of 0.7MPa (gauge pressure) for the feed air an ambient temperature of 20℃, and a relative humidity of 80% as the design reference. The data provided in this sample is for reference.

TCN-D 系列制氮机 氮气纯度 : 99.99% (Nitrogen Purity)					
型号规格 Model	氮气流量 N ₂ (m³/h) Nitrogen Production	进口管径 Intel pipe size	出口管径 outel pipe size	外形尺寸 (mm) H*L*W	有效耗气量 (m³/min) Effective air consumption
TCN-D5	5	DN15	DN15	1500*800*500	0.66
TCN-D10	10	DN20	DN15	1800*900*600	1.00
TCN-D15	15	DN20	DN15	1900*1000*600	1.67
TCN-D20	20	DN25	DN25	2400*1000*700	2.33
TCN-D25	25	DN32	DN25	2400*1100*700	2.66
TCN-D30	30	DN32	DN25	2600*1150*800	3.33
TCN-D35	35	DN32	DN25	2600*1200*800	4.00
TCN-D40	40	DN40	DN25	2600*1400*800	4.66
TCN-D50	50	DN40	DN25	2600*1500*900	5.33
TCN-D60	60	DN40	DN40	2750*1600*900	6.00
TCN-D70	70	DN50	DN40	2750*1750*900	8.33
TCN-D90	90	DN50	DN40	2750*1900*1000	10.00
TCN-D120	120	DN65	DN40	2890*2150*1200	11.67
TCN-D130	130	DN65	DN40	2890*2200*1200	13.33
TCN-D150	150	DN65	DN40	2890*2300*1200	15.00
TCN-D170	170	DN65	DN40	2900*2500*1350	16.67
TCN-D180	180	DN65	DN40	2900*2500*1350	18.33
TCN-D200	200	DN80	DN40	2900*2500*1400	20.00

注:本表所列数据以吸附压力 0.7MPa(表压) 为原料空气, 20℃环境温度, 相对含湿度 80% 为设计基准, 本样本提供数据仅供参考。
Note: The data listed in this table is based on an adsorption pressure of 0.7MPa (gauge pressure) for the feed air an ambient temperature of 20℃, and a relative humidity of 80% as the design reference. The data provided in this sample is for reference.

TCN-E 系列制氮机 氮气纯度 : 99.999% (Nitrogen Purity)					
型号规格 Model	氮气流量 N ₂ (m³/h) Nitrogen Production	进口管径 Intel pipe size	出口管径 outel pipe size	外形尺寸 (mm) H*L*W	有效耗气量 (m³/min) Effective air consumption
TCN-E5	5	DN15	DN15	1500*800*500	0.55
TCN-E10	10	DN20	DN15	1800*900*600	1.01
TCN-E15	15	DN20	DN15	1900*1000*600	1.52
TCN-E20	20	DN25	DN25	2400*1000*700	2.1
TCN-E25	25	DN32	DN25	2400*1100*700	2.55
TCN-E30	30	DN32	DN25	2600*1150*800	3.1
TCN-E35	35	DN32	DN25	2600*1200*800	3.56
TCN-E40	40	DN40	DN25	2600*1400*800	4.1
TCN-E50	50	DN40	DN25	2600*1500*900	5.1
TCN-E60	60	DN40	DN40	2750*1600*900	6.1
TCN-E70	70	DN50	DN40	2750*1750*900	7.1
TCN-E90	90	DN50	DN40	2750*1900*1000	9.1
TCN-E120	120	DN65	DN40	2890*2150*1200	12.2
TCN-E130	130	DN65	DN40	2890*2200*1200	13.2
TCN-E150	150	DN65	DN40	2890*2300*1200	15.2
TCN-E170	170	DN65	DN40	2900*2500*1350	17.2
TCN-E180	180	DN65	DN40	2900*2500*1350	18.3
TCN-E200	200	DN80	DN40	2900*2500*1400	20.3

注:本表所列数据以吸附压力 0.7MPa(表压) 为原料空气, 20℃环境温度, 相对含湿度 80% 为设计基准, 本样本提供数据仅供参考。
Note: The data listed in this table is based on an adsorption pressure of 0.7MPa (gauge pressure) for the feed air an ambient temperature of 20℃, and a relative humidity of 80% as the design reference. The data provided in this sample is for reference.