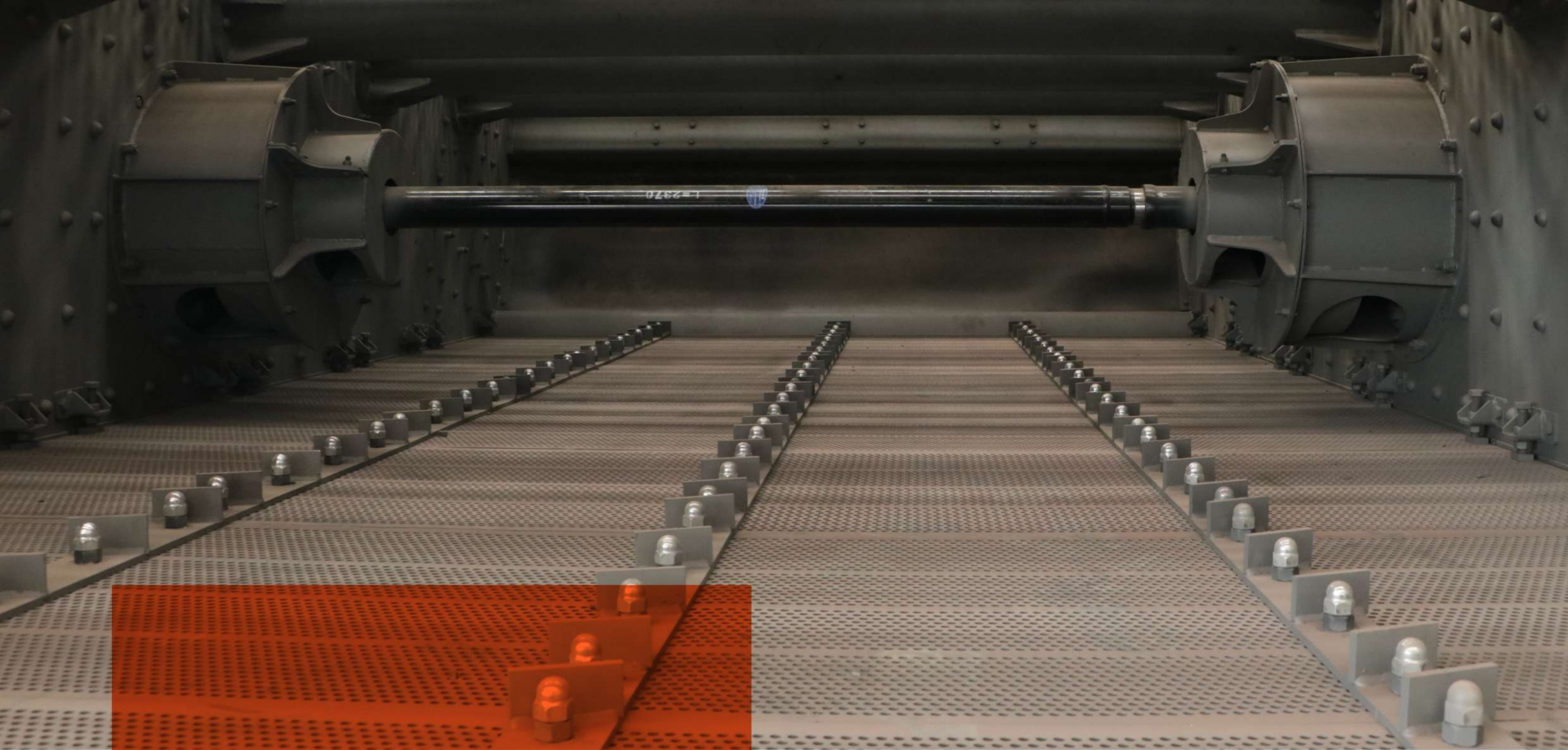


Inclined Screen

# HENAN EXCELLENT MACHINERY CO.,LTD

Bulk Material Handling





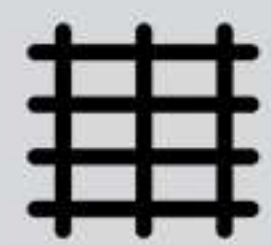
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## INCLINED SCREEN PROFILE

Inclined Screen uses non-welded frame design with high strength bolt connection. Adjustable vibration characteristics, suitable for different material types and screening sizes, high screening efficiency, reliable. Inclined screens are available in different sizes, from 2 square meters to 16 square meters, with up to four decks, and can offer different types of woven mesh, perforated panels, polyurethane panels to meet customers' wide range of applications of different materials.

Inclined Scree is a multi-functional, large-throughput, durable and wear-resistant screening machine, which can be used in a wide range of primary and secondary screening applications. Suitable for processing and grading aggregates, minerals and recycling applications, usually in close coordination with crushers, belt conveyor, etc.

# PRODUCT FEATURE



Due to the strong vibration of the screen box, the phenomenon of material blocking the screen hole is reduced, so that the screen has higher screening efficiency and productivity.



Inclined screen adopts cylindrical eccentric shaft exciter and eccentric block to adjust amplitude, easy to operate.



Inclined screen adopts rubber isolation spring, low noise, stable resonance area.



The inclined screen Motor and Vibration exciter coupling adopts flexible coupling, long service life, low cost, low requirements for the installation conditions of the screen machine, small impact on the motor and other advantages.



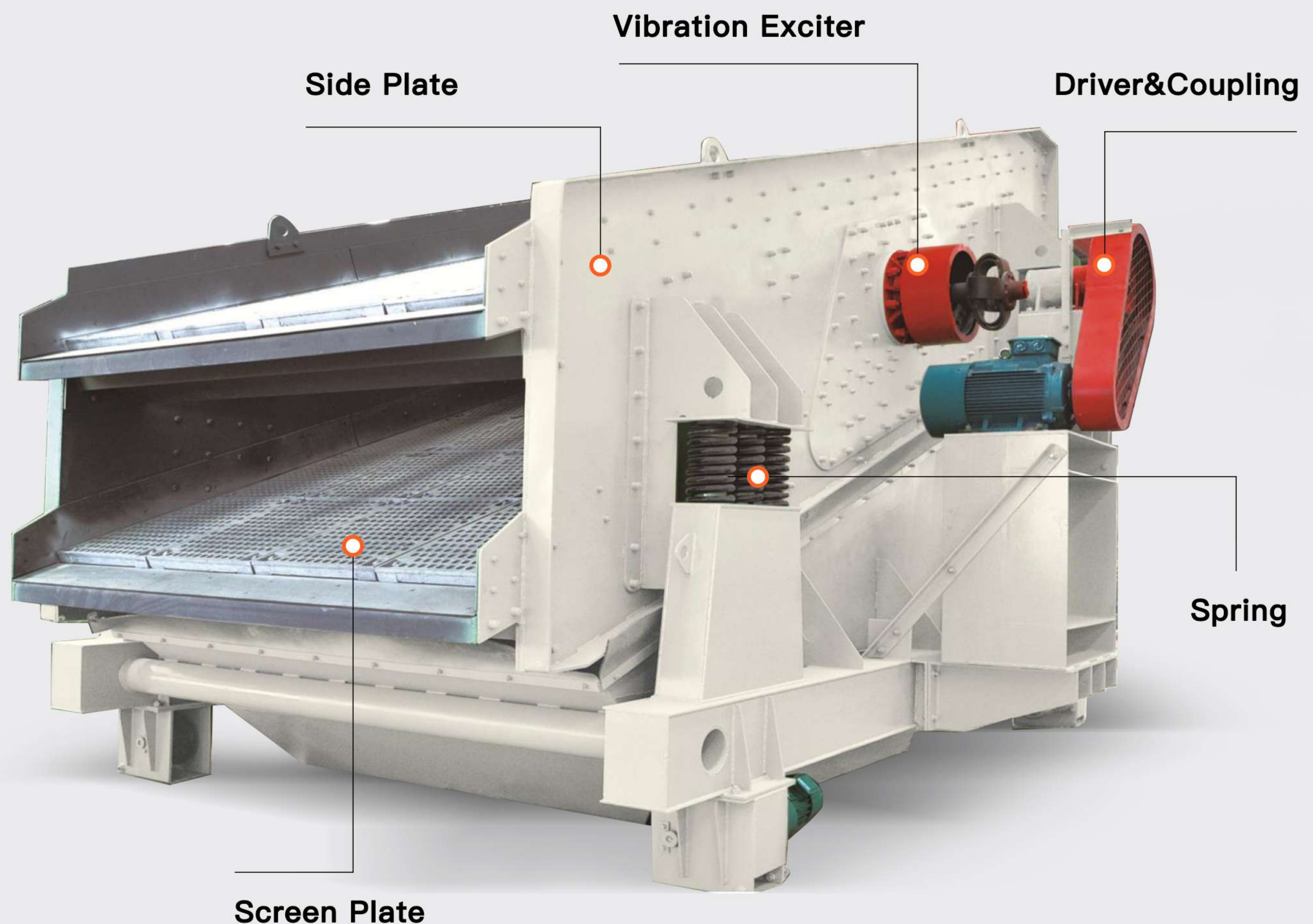
Inclined screen Simple structure, easy to replace the screen surface, long material sieve flow line, screening specifications.



# WORKING PRINCIPLE

Inclined screen is a screening equipment with block eccentric exciter as excitation source, rubber bearing spring as elastic element and screen box exciter as moving part. The shaft of its vibrator is fitted with a counterweight block. The power of the vibrating screen is transferred to the driving shaft by the belt of the motor. After the speed ratio is 1 power gear transmission, so that the shaft high-speed rotation, thus generating vibration force, so that the screen box for continuous eccentric circular motion.

Material under this power, along the horizontal screen surface in a circular direction to do continuous drop motion. Moving forward while throwing loose layers, the process of particle size sieving and conveying is repeated.



# PROCESSING TECHNOLOGY OF MAIN COMPONENTS

## 01 Side Plate

The vibrating screen side plate is made of Q245R which is a kind of low alloy high strength container plate, the plate implementation standard is GB/T713-2014. The steel plate has the advantages of high strength, fatigue resistance, impact resistance, corrosion resistance, low temperature resistance, wear resistance, easy processing and so on. The comprehensive mechanical property is good, very suitable for the production of vibrating screen.

The side plate is designed with the aid of CAD computer, and the data is transmitted to the high-precision laser cutting machine through the microcomputer centralized control center (as photo shown below) to complete the feeding and punching in one time.



The side plate is made of the whole steel plate in one cut, without splicing. Smooth appearance, beautiful, high precision, manufacturing accuracy  $\leq \pm 0.03\text{mm}$ , higher than the AS3678-250 standard, to ensure the manufacturing accuracy of equipment. Its flatness error is no more than 1mm per square meter.

There is no welding of the side plate, and all the angle steel, guard plate and side plate are riveted and fixed with high strength rivet, completely excluding the possibility of deformation and cracking of the side plate caused by welding stress.



## 02) Beam

### (1) Structural characteristics of beam

The beam is the main component of the vibrating screen, play the role of connecting two side plates and supporting the screen plate, in the vibrating screen operation not only to bear the lateral force from both sides of the plate, but also to bear the screen plate and its own gravity, so the strength of the requirements are very high.

Vibrating screen beam using high-quality seamless low carbon alloy steel pipe, stiffness, light weight, completely eliminate splicing in the vertical direction. This structure design has a high safety factor, very suitable for the use of vibrating screen conditions.

Beam steel pipe and two ends of the connection flange completely full welding, overall heat treatment after welding, eliminate welding stress, fine processing flange connection surface, ensure the end face perpendicularity.

### (2) Beam processing and manufacturing technology

Vibrating screen beam adopts special fixture butt, to ensure the butt accuracy.

After the butt joint is completed, the senior welder welds, welding technology meets JB/T 5000.3-2007 standard, welding material meets GB1300-77 standard, drying temperature of welding rod 300 ~ 350°C, heat preservation 30 ~ 60 minutes. All welds are full welding to ensure the welding strength. The flatness of the flange after welding should be within the range of 1mm.

After the core components such as the lower beam and upper beam of the screen machine are welded, they are transferred to the intelligent temperature control trolley type annealing furnace (as photo shown below) for complete stress removal annealing treatment. Annealing requirements: the welds are slowly heated with the furnace (100 – 150°C/h) to 500–650°C, and after holding for 2 – 4h, they are slowly cooled with the furnace (50 – 100°C/h) to below 200 – 300°C ,then come out the furnace for air cooling.



After stress removal and annealing, the parts are transferred to the roller-through shot blasting machine (as shown in the figure below) for structural parts shot blasting, to achieve the requirements of rust removal, surface oxidation, improve the surface roughness of the structural parts, finish up to Sa2.5 level.

After shot blasting, the beam is finished and the end faces of the two flanges are milled to reach the required tolerance range of shape and position.

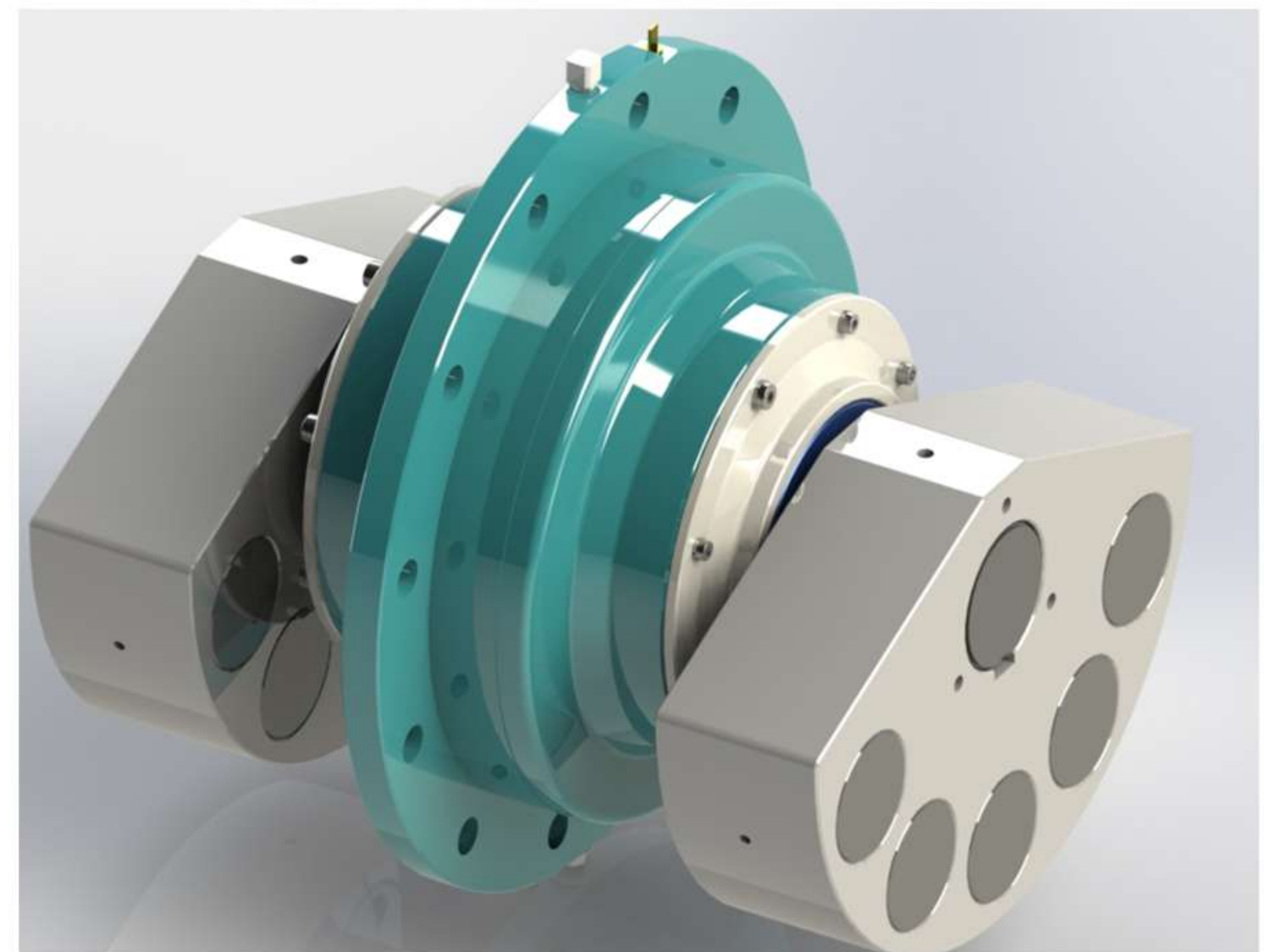
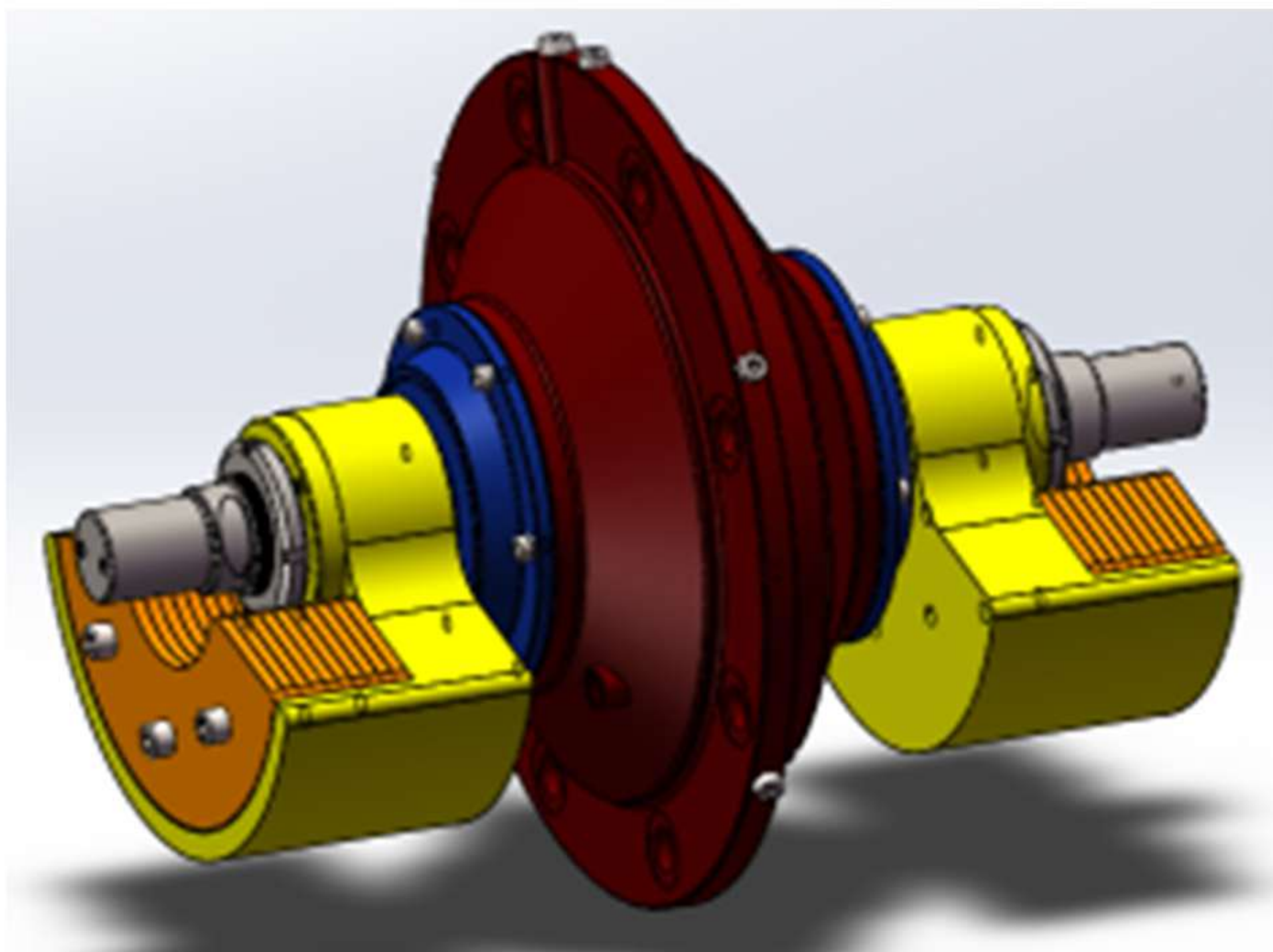


### 03 Vibration Exciter

The vibrating screen adopts ZDQF series grease lubricated flange type block eccentric vibration exciter, equipped with large clearance vibration machinery special bearings, which can be adjusted by increasing or reducing the number of counterweight blocks to adjust the amplitude.

#### (1). Intelligent monitoring system of vibration exciter

A. All vibration exciter are equipped with intelligent temperature measuring devices, which can be connected to the project centralized control system to realize online monitoring of bearing temperature;  
B. All vibration exciter are equipped with multi-point intelligent automatic lubrication system. The automatic lubrication system can set the number of oil filling and the time of oil filling, which can effectively lubricated the bearing fully, greatly prolonging the service life of the vibration exciter, making the service cycle of the whole machine longer, and reducing the work intensity and cost of daily maintenance. M0S2 extreme pressure No.2 lithium base grease is usually used.



## (2). Processing technology control of core parts of vibration exciter

### A. Casing

The casing is made of Q400-18 ball mill cast iron precision casting, which has good machinability, high impact toughness at room temperature, and high plasticity. The brittleness transition temperature is low, and the toughness is good at low temperature.

Before processing the casing, our company will do natural aging treatment or artificial aging treatment on the casing to eliminate the internal stress, stable structure and size, improve mechanical properties.

After the aging treatment is completed, the 3 axis 5 hedral large gantry processing center to complete multiple surface processing in order, as well as complete the milling, boring, drilling, tapping and other processes of processing, reduce clamping quantity and correction times, effectively ensure the accuracy of the shape and position tolerance of each surface. Vibration exciter bearing seat hole center line coaxiality tolerance in line with 6 level accuracy requirements in GB/T 1184.

Before the casing assembly, the processing iron chips and burrs are removed, and the casing is comprehensively cleaned by shot blasting, high pressure blowing and other methods. After completion, anti-rust oil is applied on the processing surface and placed in the dust-free assembly workshop for reserve.



### B. Shaft

The shaft is made of 40Cr, and it is conditioned after rough turning. It has good comprehensive mechanical properties and low temperature impact toughness. Then it is finished to ensure the tolerance and precision of shape and position; And grinding the bearing position to ensure the good surface finish. Finally, apply anti-rust oil and place it in the dust-free assembly workshop for reserve.



### C. Eccentric block

The eccentric block is made of HT200 precision casting and processed by a 3 axis 5 hedral large gantry processing center. It is positioned by special tooling to ensure that the keyway and the counterweight column's mounting hole meet the requirements of shape and position tolerance and dimensional accuracy.

### (3). Assembly and test of vibration exciter

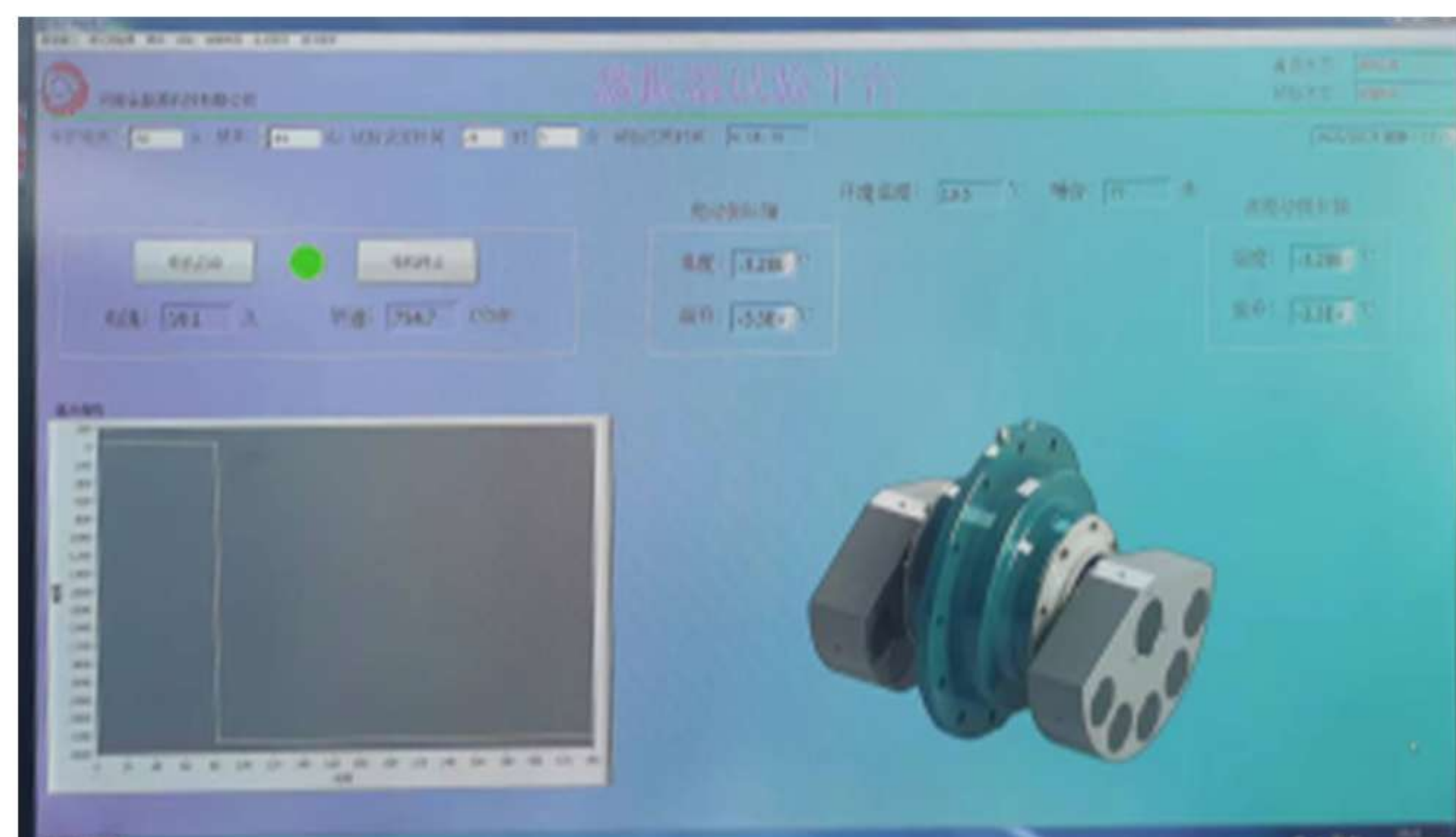
There is a special workshop for the assembly of the vibration exciter to ensure that the assembly of the vibration exciter is carried out in a dust-free environment.



There is a special vibration exciter test bed, each vibration exciter is assembled and debugged in the factory, test the performance indicators, we must ensure it fully qualified before assembly on the vibrating screen;

The vibration exciter test bed adopts intelligent monitoring system:

- ① In the process of the vibration exciter test, the monitoring indicators are displayed and recorded in real time, and the data is accurate and reliable;
- ② With indicator abnormal alarm device, according to the test situation timely alarm;
- ③ The monitoring results are automatically generated by the computer.



#### 04) Vibration Isolation System

Vibration screen adopts steel cylindrical spiral compression spring shock absorption, spring material 60Si2Mn. Damping spring with high tensile strength and special process manufacturing, spring steel wire surface micro-coating using phosphating treatment and powder coating and other pioneering technology, has a very high stability. The spring has large bearing capacity, long service life and excellent vibration isolation effect.

The service life of the damping spring is not less than 10000h. A lifting lug is arranged above the spring for easy replacement.



#### 05) Screen Plate

The upper screen plate adopts light rail grate screen plate, high screening efficiency and impact resistance ability, this kind of screen fixed structure easy for assembly and disassembly, shortening the time of spare parts replacement, reduce artificial maintenance quantity.

The lower screen plate adopts round steel welding screen plate, high screening efficiency and long service life.



## 06) Transmission Device

By 2 motors respectively through two groups of small belt wheel, V belt, large belt wheel, through the end bearing seat, synchronous belt, drag 2 groups of vibrator synchronous rotation, the vibrator produced on the screen machine, so that the screen machine produces circular or approximately circular motion. The transmission mode can realize long-term continuous and reliable operation; At the same time, the frequency of vibrating screen can be conveniently adjusted by replacing the motor belt pulley, so as to adapt to the classification of materials under different working conditions.



Large and small belt pulley are fixed by expanding sleeve, easy and quick maintenance. The transmission device is equipped with a complete metal protective cover to effectively ensure the personal safety of on-site maintenance personnel.

## 07) Safety And Environmental Protection Measures

### (1) Safe operation measures

- A. All exposed moving and rotating parts are provided with a firm and reliable protective cover, the length of the protective cover can cover all rotating parts, and there is a turning mark, the protective cover is reasonable in structure, easy to disassemble and assemble.
- B. Clear marks are provided for dangerous areas or rotating parts.
- C. Detachable parts such as vibration exciter and motor are equipped with lifting lugs for easy lifting.

### (2) Environmental protection measures

- A. The screen machine is equipped with a dust cover, which can effectively prevent the dust spillover during the operation of the equipment and meet the requirements of environmental protection.
- B. Under any operating conditions of the equipment, within one meter around the equipment according to the GB12348-1990 industrial enterprise factory boundary noise standard II mixed zone evaluation standard, the measured noise decibel value is less than 60dB (A).



Committed To Be Leader  
In Bulk Material Handling

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