

KYDR203CD-23 Mineral Oil Separator



Main purpose

Mineral oil separator is mainly used for ship or land use power station fuel and lube oil purification regeneration treatment. Reduce engine wear and extend the life of the machine, to ensure normal operation of diesel engines.

Working principle

Use the differences in density between the different substances, the centrifugal force separation and extraction of physical separation techniques. In the gravitational field, known as gravity separation, in centrifugal field called the centrifugal separation.

● Gravity separation

Big density solid particles of the mixture slowly sinking under the gravitational attraction, the mixture become clear and the density small of liquid is up. Gravity separation takes a long time and occupies a lot of area. It's different to separate , especially when the density is close and viscosity

● Centrifugal separation

Mixture with different density become a circular ring under the force of centrifugal in a high -sped rotating drum, the particle with max density move outward to the wall of the drum while the small density of liquid in the innermost layer. Centrifugal separation just take only a short time that can get the effect of gravity separation because the centrifugal force formed by the high -speed rotation of drum is much bigger than gravity

● Separation Space

There are a ground of discs within the drum of the disc separator which can divided the drum space into many thin-layer , it greatly shorten the settling distance and improve the separating effect..

Movement route of the particles C in the separation space Reference Figure 1-3

If any particles between A and B can reach the internal surface of the disc can be separated.

● Separation

Usually, the separator is divided into two types. One is used for solids and two liquid phases from each other in one single continuous process, it is so called purifier. The other is used for solids and one liquid phase from each other, it is so called clarifier.

Technical data

Model	KYDR203CD-23
Drum speed	6930 rpm
Counter speed	79-83rpm
Capacity(L/h)	1500L(No.0light diesel oil or water flow) The actual capacity is determined by the
	viscosity and quality of the oil
Slag type	Manual operation
Inter pressure	≥0.04

Out pressure of clear oil gear pump	≥0.2
Motor	Y100L1-4-H-B5 2.2kW 50Hz/380V/3P
Weight	250 KG
Size(L x W x H mm)	850mmX625mmX1200mm

lubrication oil							
Separation conditions and actual productivity of mineral oil							
Item	Heavy Fuel oil			Heavy Oil (Fuel Oil)	machine Branded oil	speed machine self-cleaning oil	Turbi ne Oil
viscosity/(mm ² /s)	mm ² /s (50°C)				mm ² /s (40°C)		
	13	20.5	36.2	80	180	100~120	65
Density/(kg/mm ³)	Kg/m ³ (20°C)						
	≤900		900~991		880~900		900
separation temperature/°C	40	60	80	98 (Not recommend)	80		75
The ratio of actual productivity and rated capacity %	110	100	60~65	45~50	50~60	25~30	80 ~ 85

Note:

1. The ratio of actual productivity and rated capacity is based as a percentage of rated processing of the 30th of GB445 heavy fuel oil
2. The actual productivity of fuel oil is suitable to single-stage separation
3. The actual productivity of lubricating oil is suitable to bypass continuous separation

Structure

Separator is composed mainly by the drive mechanism (horizontal shaft and vertical shaft), drum rack, speed measurement equipment, brakes, motor and etc.

● Drive mechanism

Through the friction clutch, the motor drive shaft is a gear pair, and then passed to a vertical shaft driven by the drum operation. Friction clutch can guarantee separator start, the process is relatively flat, accelerated and more uniform in order to prevent the motor and gear pairs overload. For reduce the buffers seat wear and reduce the impact of the rotating drum of machine vibration, so the buffer seat using elastic supporting structure, and absorb shock and vibration energy.(refer to Fig 4-1)

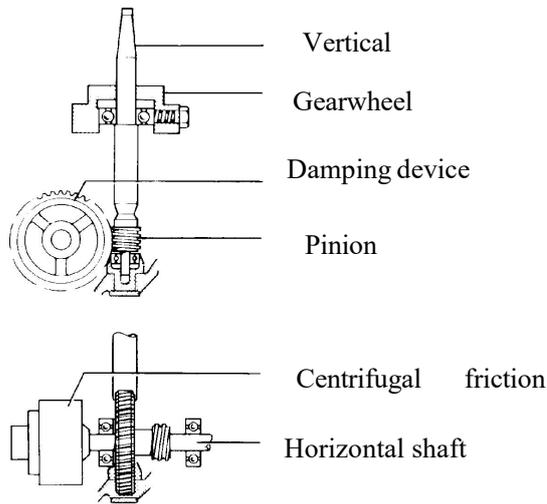


Fig 4-1 drive mechanism

● Speedometer

Check the separator is in the normal operation state, counter to the minute to show the separation of rotational speed. Normal operation, the counter speed shall comply with the limits prescribed in the Technical Specifications

● Brake equipment

Separator drum rotation speed of the large amount of rotational inertia. Let it stop rotating separator parking, it would take a long time, the use of the brakes can reduce the stopping time, but also can rapidly through the critical speed of the vertical shaft. Encounter special exception, the brake is essential

● Drum

The drum is one of the most important parts of the separator, as shown in Figure 4-2, The separation working is in the drum for the materials.

Drum is composed of the rotor, drum cover, distributor, group of discs, disc top cover, the main lock ring, and etc.

The drum body and drum cover are locked together by the lock ring, with the drum inside the distributor and disc group. Disc group discs cover the neck, upper part equipped with a proportion of ring, tighten the lock ring using the gravity.

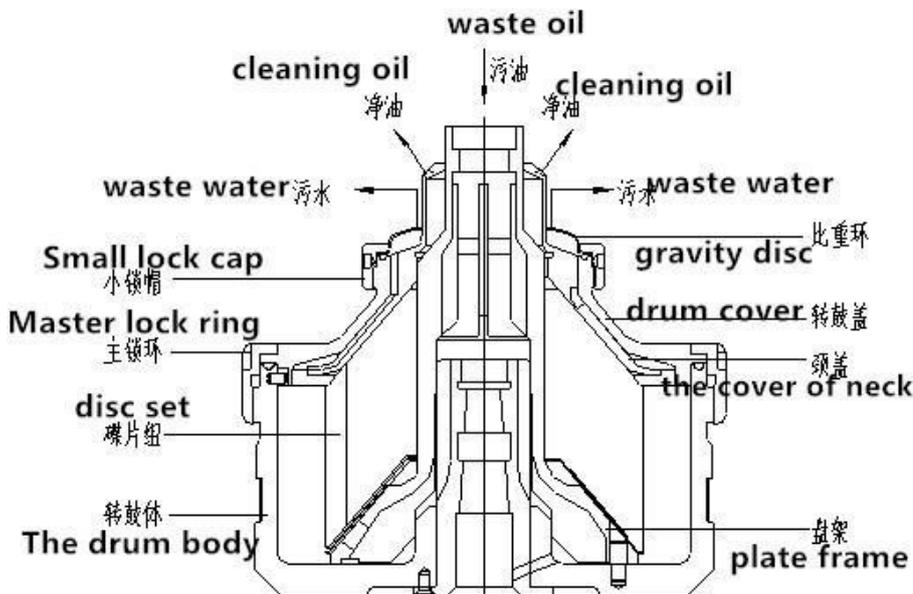


Fig 4-2 structure of drum