

3 Phase Disc Separator

(Light Liquid, Heavy Liquid & Solids Separation)



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Disc Separator

3 Phase Separation



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Brief Introduction

GN 3 phase disc stack separator is a high-speed, stable, sealed, efficient, and automatic slag discharge 3 phase separation equipment. It is widely used for liquid, liquid, solid 3-phase separation or liquid-liquid separation. The 2-phase solid-liquid separation disc separator has only one liquid discharge port and one slag discharge port, while the 3-phase disc separator has two liquid discharge ports and one slag discharge port, which can separate two liquids with different specific gravity at the same time. It can also discharge solid phase materials. Compared with the 3 phase decanter centrifuge, the 3 phase disc separator has larger rotation speed and G force.

The 3 phase decanter centrifuge usually has a separation factor of about 3000G, while the 3 phase disc stack separator G force is up to 12000G. Therefore, the 3 phase disc separator can more thoroughly separate liquids with different specific gravity and the liquid phase discharged is more clarified. However, compared to 3 phase decanter centrifuges, 3 phase disc separator is more used to separate materials containing fine particles, with less solids content. So before entering the 3 phase disc separator, the material can be separated by the decanter centrifuge for pre-stage separation to reduce the solids content and remove big particles.

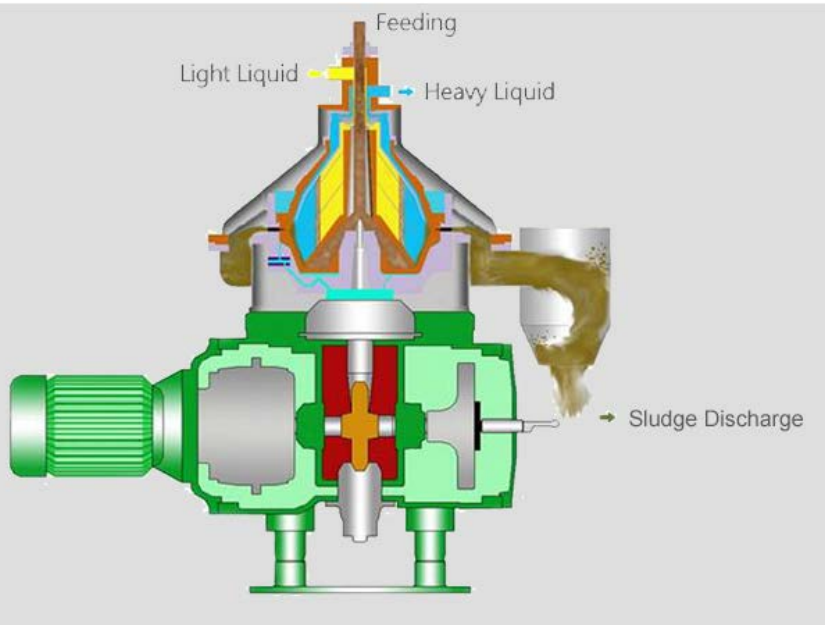
Disc Separator

Working Principle



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Working Principle & Features



The separated material enters into the heart of the machine, that is, the inside of the bowl. Under the action of strong centrifugal force, the material passes through a set of disc bundle separation intervals. With the neutral holes of the disc as the interface, the liquid with larger specific gravity moves along the disc wall towards the outside the neutral hole, where heavy slag accumulates in the sediment area, and the heavy phase liquid flows upward to the centripetal pump; the lighter liquid with a smaller specific gravity moves along the disc wall into the neutral hole and converges to the lower centrifugal pump. The light and heavy liquid phases are discharged by the lower centrifugal pump and the upper centripetal pump respectively; the heavy slag is regularly discharged; continuous production is implemented.

Technical Parameters

3 Phase Disc Separator

Model	GNSD-40	GNSD-90	GNSD-125	GNSD225
Type	Liquid-Liquid Separation (or Liquid-Liquid-Solid Separation)			
Bowl Diameter	440mm	580mm	620mm	800mm
Slide Piston	380mm	500mm	550mm	700mm
Theory Capacity	1-2 m3/h	5-10m3/h	10-15 m3/h	20-25m3/h
Max. Speed	7100RPM	6150RPM	6000RPM	4500RPM
Max. G Force	12409G	12273G	12488G	9063G
Motor Power	11KW	18.5KW	30KW	45KW
Feeding Pressure	0-0.1Mpa			
Starting Time	10-15 minutes			
Feed Material	Solids<3%			

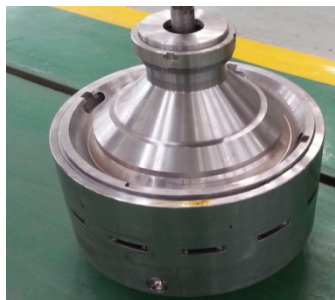


Bowl System

Features



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立轴 Vertical Shaft



横轴 Horizontal Shaft



铜齿 Copper Gear



大小向心泵 Large and Small Centripetal Pump

The bowl is the heart of the disc separator. The process effect is obtained by the rotating drum with high speed. It is mainly composed of the bowl body, the bowl cover, the locking ring, the disc holder, and a group of discs, etc. Each part of the bowl is the key to the separator. The key parts are machined by CNC machine and followed strict quality control system control. After assembling these parts precisely, the whole dynamic balance test is carried out precisely. The bowl is made of imported high-strength, corrosion-resistant stainless steel material, and integral forged by high-pressure, four non-destructive testing, CNC machining, in order to ensure that the separator operates safely and reliably under long time, high load and high speed.

Disc Processing Technic

Advanced Technic Ensures Quality



The disc is the key part of the separator. The processing quality determines the separation effect of the machine directly. We independently develop the special processing equipment for the disc. All the processes are formed by uniform mold and processed by surface polishing and flattening. The whole process achieves the international advanced level.

All the discs are spinning forming at one time, and the surface is precisely smoothed to separate the fluid under the minimum frictional resistance to obtain the best separation effect.

Control System

Control and Monitor



Control and Monitoring

The GN disc separator control system can perform real-time separation, start, stop, emergency stop and manual slag control, ammeter, alarm and so on.

- Each separator is equipped with an independent PLC control and a separate touch screen.
- The control cabinet has an emergency stop button, and equipment would not start automatically after the recovery of power supply.
- PLC and touch screen are Siemens or well-known international series.
- The control module reserves at least 20% remain, and the digital input and output signals are controlled by DC24V.
- Display and control the operating conditions of the separator and associated equipment.
- Setting up the operating parameters of the separator and the operation of the associated equipment
- Display operating parameters of the separator, such as vibration, current, and speed
- Display real-time alarms, help information

Alarm function

- Vibration alarm of the machine: When it is exceeded the First Grade specified value, it will automatically alarm. If it is exceeded the Second Grade specified value and the delay is not eliminated, it will stop automatically.
- Speed alarm: When the speed of the machine is greater than or less than 5%, it will alarm automatically, and it will stop automatically after a certain time delay.
- Alarm of slag discharging amount less than the specified value. When the machine is in normal operation, it is necessary to discharge the slag on time and need to discharge the pre-set slag discharge amount, otherwise the machine will alarm automatically. The discharging shortfall can be supplemented by manual slagging.
- Bowl leakage alarm, when the seal ring of the large piston is not completely sealed, the machine will alarm automatically.

Facilities



No. 1 Factory: Headquarter Office



No. 2 Factory: Centrifuge & Pumps Manufacture



Facilities

Pump & Centrifuges Workshop



Facilities

Fabrication & Coating



Laser Cutting



Plasma cutting



Ball Blasting and Paint



Welding



Powder Coating



Warehouse & Stock

Facilities

GN America Company



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