

Mitsubishi Sludge Discharge

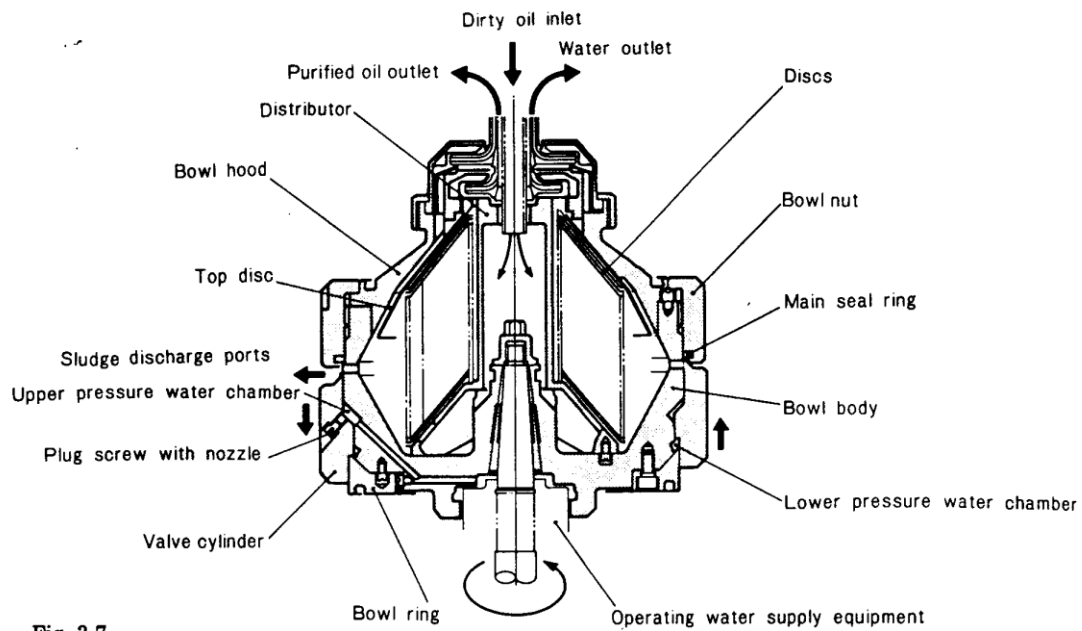
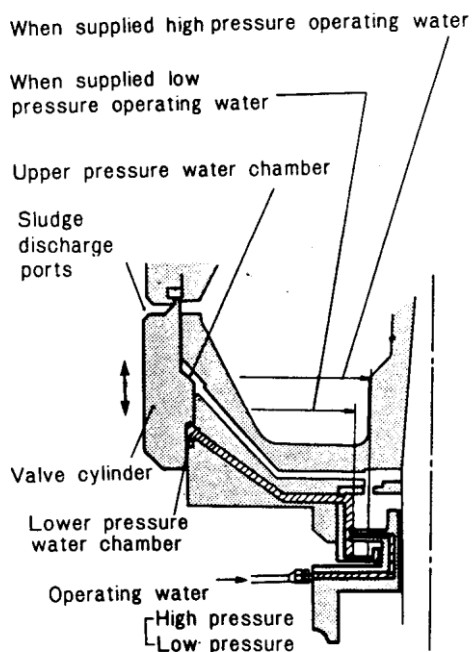


Fig. 3-7

Mechanism of Discharge



Since the lower pressure water chamber installed at the lower part of bowl is filled with water during operation, the valve cylinder is pushed upwards by water pressure generated by centrifugal force and sludge discharge ports are closed. On discharging sludge, when water is supplied into the upper pressure water chamber, since it has larger pressure receiving area than the lower pressure water chamber, the force of the former will exceed over that of the latter. So the valve cylinder will be pushed

downwards, sludge discharge ports will be opened, and solids accumulated inside the bowl will be discharged by powerful centrifugal force.

OPERATING WATER SUPPLY EQUIPMENT

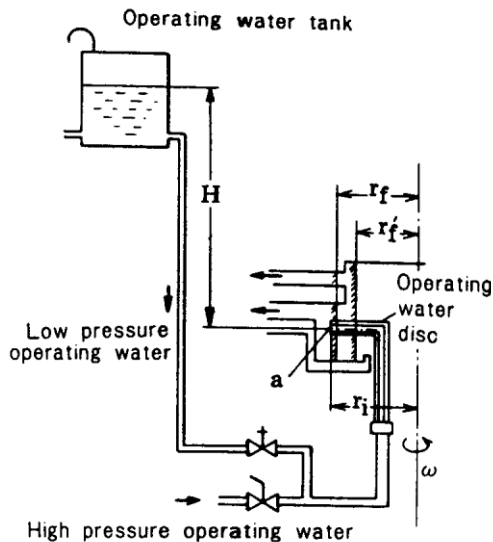
It has been explained in the preceding paragraph "3.2 Mechanism of Discharge" that sludge discharge ports will be opened and closed by supplying water into the upper and lower pressure Water chambers of bowl, and their water supply is performed by

operating water supply equipment incorporated on the lower part of bowl.
 A detail structure is as shown in the following paragraph.

Principle

Fig. 3.8 shows the operating water supply equipment. In case low or high pressure operating water is supplied, water level of the operating water chamber will move radially and operating water will be supplied into the lower or upper pressure water chamber. Then valve cylinder will slide up and down, and sludge discharge ports will be opened or closed.

During operation, the water level in the operating water chamber is settled at a certain position because of the following reasons.



In Fig. , the pressure "P" of bowl at the top of operating water disc (point "a") is shown in the following equation:

$$P = \frac{\gamma}{2g} \cdot \omega^2 (r_i^2 - r_f^2) \dots \dots \dots (1)$$

- r_i : Radius of operating disc
- r_f : Radius up to water level
- ω : Angular velocity
- γ : Specific gravity of water
- g : Acceleration of gravity

While, the pressure "P'" (water pressure) at the top of operating water disc by low

pressure operating water tank is shown in the following equation:

$$P' = \gamma \cdot H \dots \dots \dots (2)$$

H : Water head

Since each value of γ and g is constant, and that of ω and r_i is fixed according to the Model No. of SELFJECTOR, the value of r_f will vary until the pressure "P" reaches the Pressure equal to that of operating water ("P'") and the water level will be fixed at a certain position. So, water will neither flow into operating water disc from operating water chamber, nor flow out to the chamber.

Under above condition, since the top of static operating water disc is dipped in water rotating at high speed, naturally friction will be caused between the operating water disc and water. In that case, by the effect of the friction, water around the operating water disc is put into disorder and become water spray, and as a result water will be consumed.