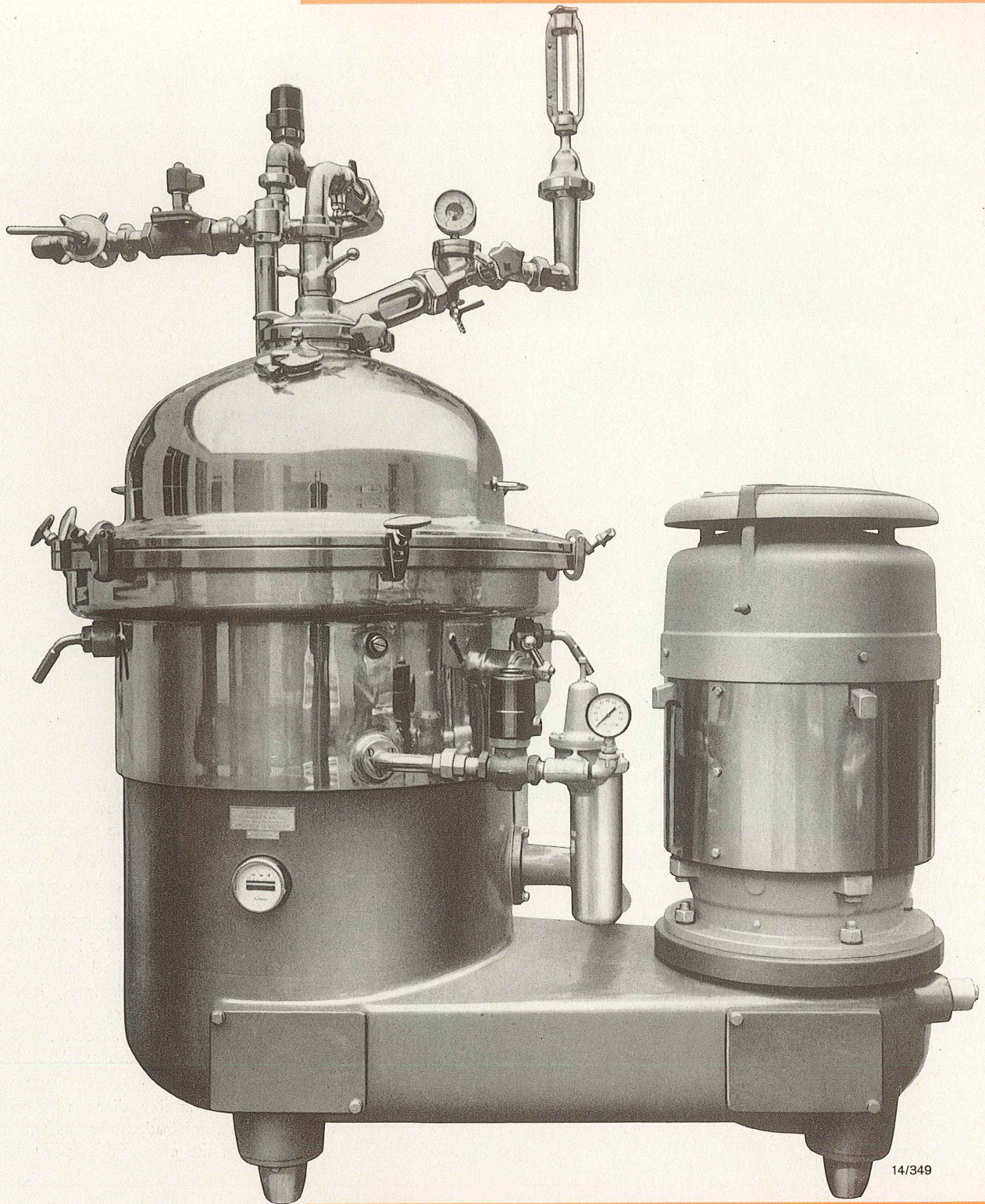


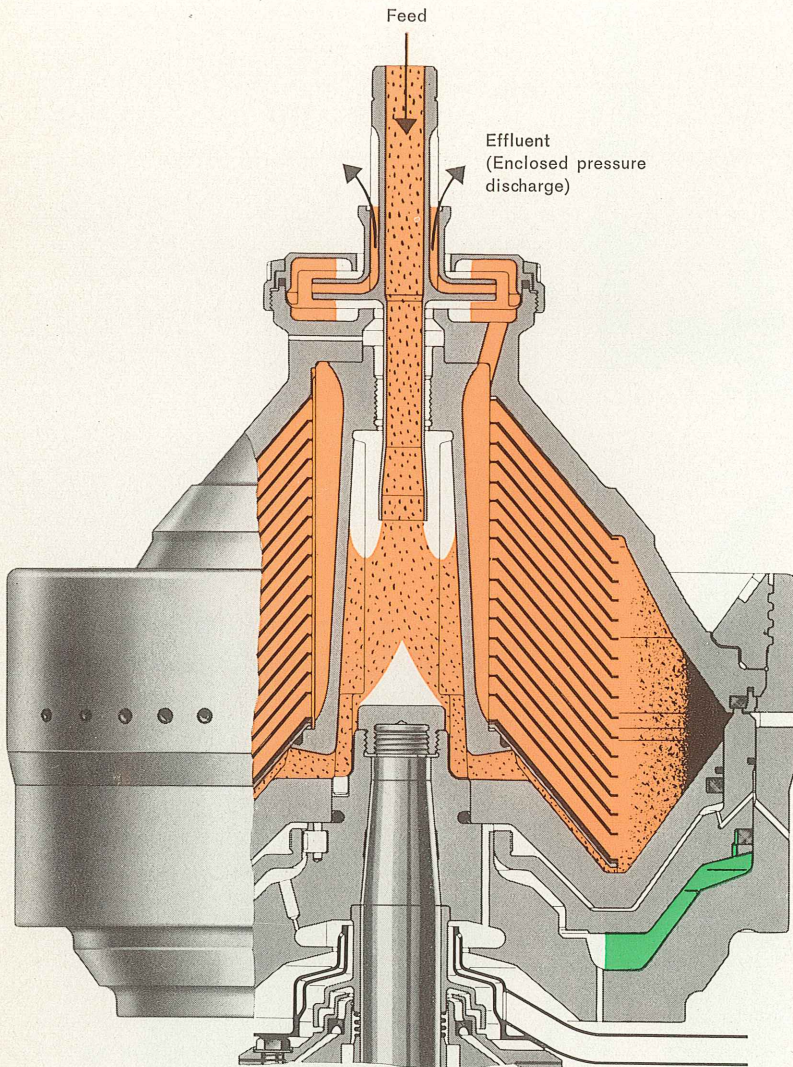
**WESTFALIA
SEPARATOR**



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WESTFALIA **AUTOMATIC DE-SLUDGERS**
with Self-Cleaning Bowl
Series 15037/15007

WESTFALIA HIGH CAPACITY Automatic De-Sludgers Series 15037/15007



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Fig. 1: Cross section of Clarifier Bowl, Model SAMR-15037

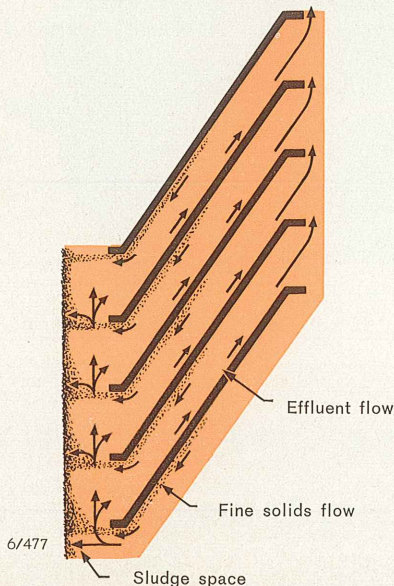


Fig. 2: Operating principles of the discs for clarification

The WESTFALIA Automatic De-Sludgers are particularly suitable for the clarification of liquids and the separation of liquid mixtures whose solids content is too great for conventional high-speed, solid wall centrifuge bowls.

The Automatic De-Slugger makes it possible to process continuously, without the inconvenient and costly downtime necessary for manual bowl cleaning. This is particularly important when the sludge is tough and sticky, when the processing is at high temperatures, or when the feed material may be gaseous, corrosive, or even poisonous.

Operating Principles of the Bowl

The ejection of the solids from the sludge-filled bowl is accomplished through the medium of a sliding piston. This piston is activated for "de-sludging" by an operating water which, when fed into the operating water chamber, pushes the piston down, thus opening the ports of the bowl. When the solids have been completely discharged, the operating water is shut off and the small amount of water which is in the chamber below the piston, forces the piston up and thus closes the bowl (Figs. 3, 4, and 5). This design is unique in self-cleaning centrifuges, because the activation of the piston does not depend upon any centrifugal pressure developed in the separating chamber of the bowl itself.

The solids are ejected from the bowl instantaneously while the unit runs at full speed.

Operating water consumption during de-sludging is nominal; only about 2–2½ gallons per cycle. No operating water is used during the normal operational period. The actual de-sludging cycle takes only a few seconds.

The design of the WESTFALIA De-Slugger bowl is specially suited for **partial de-sludging**, that is, to eject only the solids, without losing valuable liquid or diluting the solids. During the partial de-sludging, it is not necessary to shut off the feed to the machine because the bowl is open only long enough to permit just the solids ejection. This operation of course, depends upon the type of feed material and the character of the solids contained, and it therefore must be ascertained in each individual case, whether partial de-sludging is practical.

Type SAMR Clarifier Bowl

The operating principles of the SAMR bowl are much the same as those of the standard high-speed centrifuge bowl. The liquid to be clarified enters a set of discs in the bowl, where the liquid is finely layered against the upper and lower surfaces of the discs to accomplish effective clarification (Fig. 1). Because of the proper and most effective disc angle, the solids slide easily into the sludge space of the bowl.

Large or small diameter discs with "thick" or "thin" spacers can be furnished, choice of which is determined by the nature of the clarification problem.

Applications

- Clarification of beer wort, trub wort, green beer, wine, etc.
- Clarification of molasses
- Removal of catalysts from a liquid
- Clarification of citrus, pineapple and other fruit juices
- Clarification of fermentation broths
- Concentration of precipitated curds
- De-sugaring flotation clarifier scums
- Clarification of extracts
- Clarification of mercerizing caustic

WESTFALIA Sanitary Automatic De-Sludgers

Series 15037

The **sludge catcher** and **hood** of all 15037 series de-sludgers are fabricated of stainless steel; polished and free of awkward corners, thus avoiding entrapment of solids — a **sanitary design that is particularly suitable to food processing as well as to the centrifugation of materials that are aggressive in character.**

The 15037 series Automatic De-Sludger lends itself well to operations under inert gas, accordingly permitting the centrifugation of liquids of all types in the chemical and pharmaceutical industries.

Features of the Series 15037 Bowl

The component parts of the bowl are easily disassembled and removed from the machine. Since there are no operating elements underneath the bowl bottom, it need not be removed from the spindle when the bowl is to be disassembled. The parts of the bowl are very sturdy and few in number. There are no small, damage prone parts such as screws, bolts, valves, springs, etc. The main bowl seal is in the bowl top, and is easily accessible. The threads for the bowl locking ring are located above the main bowl seal, which eliminates the possibility of product penetration into the thread area. There are only two more bowl parts in the WESTFALIA De-Sludger, as compared to the number of parts in the standard disc bowl.

Operating Principles of the Clarifier Bowl During De-Sludging

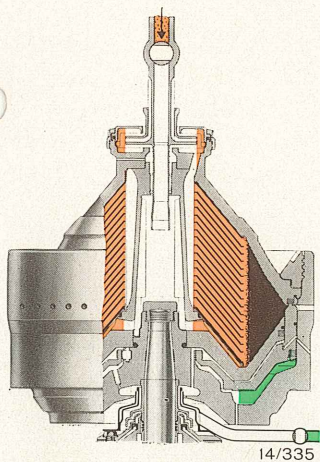


Fig. 3
When the sludge space of the bowl is filled, the feed valve is closed, and the operating water valve is turned on for a few seconds.

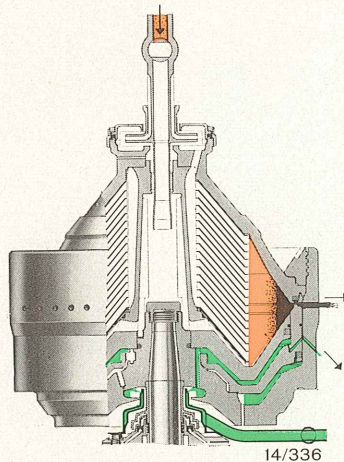


Fig. 4
The operating water chamber above the piston fills immediately, the piston is pressed down, which in turn opens the discharge ports of the bowl, and the sludge is ejected. The above illustrates the de-sludging of the entire bowl contents. A partial de-sludging would discharge the settled sludge only.

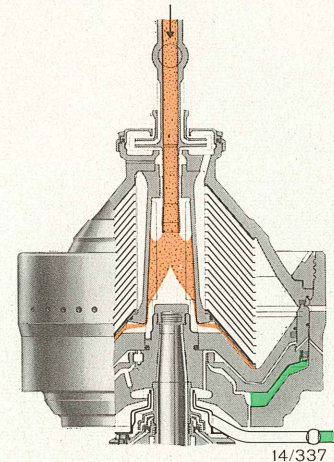


Fig. 5
As soon as operating water valve is closed, the piston automatically rises and closes the discharge ports. The operating water is forced out through drain holes.

The Liquid-SEAL and Centripetal Pump

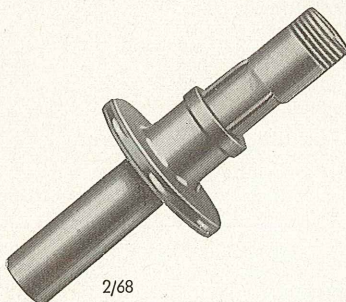


Fig. 6
Pressure Discharge by Centripetal Pump
The operating principles of the centripetal pump (reverse of a centrifugal pump) are simple. The liquid-filled bowl rotates around the stationary pump. The separated liquid phase or phases, enter the individual pump chambers located in the head of the bowl, and in seeking their exit, flow out through channels in the pump discs — sometimes referred to as "peeling discs". The rotational energy of the liquids is converted into pressure by this pump.

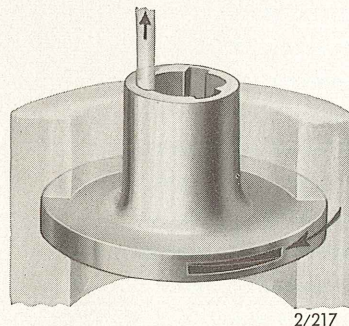


Fig. 7
The Liquid-SEAL
In conjunction with the centripetal pump, the Liquid-SEAL is an exclusive feature of many WESTFALIA centrifuges. It is formed by the product itself, wherein the periphery of the pump disc is immersed, giving a completely airtight and sanitary sealing action.
The advantages are:
● Air and foam-free discharge of the separated liquid phases.
● No need for mechanical seals.
● No liquid losses through leakage or vaporization.
● Discomfort to operators, resulting from vapors or fumes, entirely eliminated.

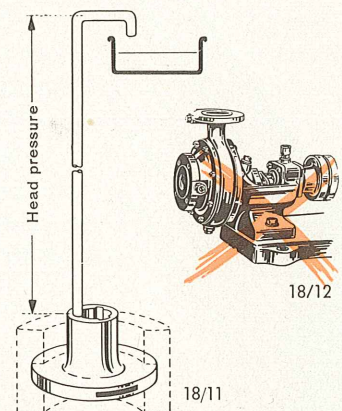


Fig. 8
Elimination of Extra Pumps
Non-wearing, built-in centripetal pump makes additional discharge pumps unnecessary. Liquid-SEAL features allows gravity feed; no feed pump necessary.

Type SAMN Separator Bowl

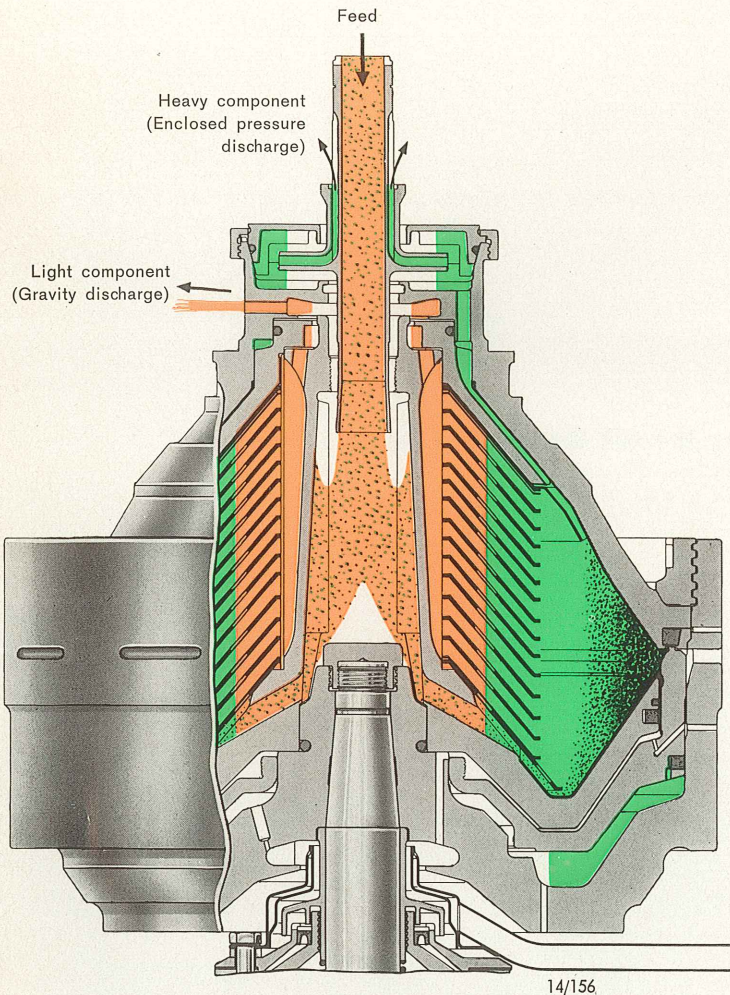


Fig. 9: Cross section of Separator Bowl, Model SAMN-15037

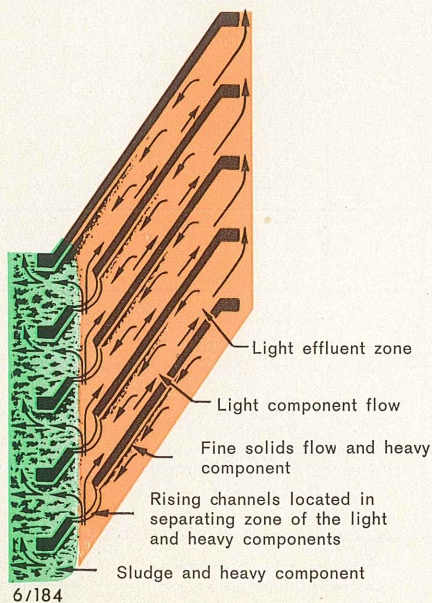


Fig. 10: Operating principles of the discs for separation

The Model SAMN-15037 is a separator/clarifier, designed to handle liquid mixtures containing a substantially greater portion of heavy liquid phase. The heavy liquid phase is discharged enclosed and under pressure through the centripetal pump and the light liquid phase by gravity through ports in the head of the bowl into a catcher in the hood from where it flows out through a spout.

The solids, as in the clarifying de-sludgers, are removed and stored in the bowl until the sludge space is filled, and then ejected.

Regulation of the separating zone, to obtain best efficiency is easily accomplished by adjustment of the valve in the heavy liquid phase discharge line - - done while the unit is running. Applying more or less back pressure by means of this valve will move the zone inwardly or outwardly to obtain optimum separating efficiency.

Applications

- Regeneration of solvents from washing and neutralizing operations in synthetics production.
- De-oiling of citrus peel liquids.
- Purification and de-watering of animal fats (tallow, lard).
- Separation of fish oil, fish presswater, whale oil, meat extracts, etc.
- Separation of soaps from hydrogenated vegetable and animal oils and fats during secondary neutralization.

The Types SAMR, SAMN previously described and the Types SAOH, SAOEH and SAOOH illustrated and described on the next page are all basic types. For particularly difficult or unusual clarifying/separating problems, modifications have been made on those models furnished to clients, to satisfactorily solve them. Improvements are constantly being made to keep up with the demands and needs of industry. Contact us for help in solving your problems.