

Disc Stack Separators





MORE THAN A MACHINE

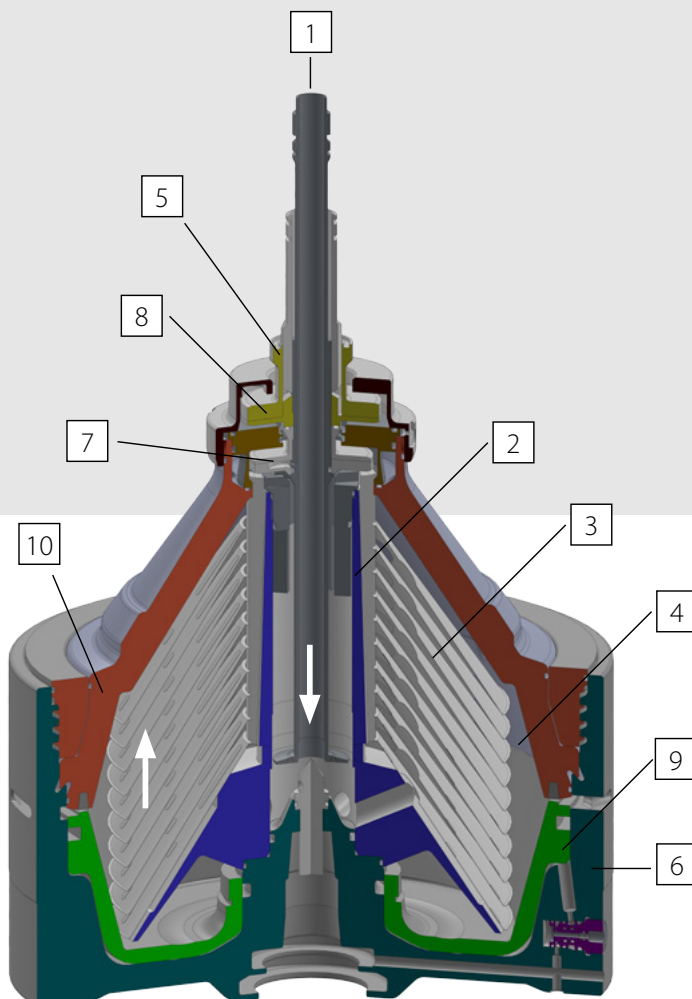
Disc Stack Separators

A self-cleaning high speed disc stack separator comprises a rotating assembly operating at high speed, a drive mechanism and a cast base frame.

The disc stack separator meets the needs of modern industrial processes by achieving a continuous mechanical separation of liquids and solids relying on the differential densities and specific gravities.

It has been designed for the clarification of liquids and capture of solids in a liquid/solid mixture, a two phase separation. Where two liquids and also solids are to be separated from each other this can be achieved by configuring the separator for three phase separation.

The disc stack separator achieves the separation using very high centrifugal force applied continuously during processing. Solids having a higher density than the liquid gravitate to the outer surface of the rotating assembly under the influence of very high centrifugal force where they accumulate, while fluids having lower density form separate layers towards the inside. Where the two fluids meet is called interface area and this can be readily adjusted according to the mixture.



Working Principle

1. Product Inlet
2. Distributor
3. Disc Stack
4. Solids Holding Space
5. Product Outlet
6. Bowl
7. Light Phase Centripetal Pump
8. Heavy Phase Centripetal Pump
9. Sliding Piston
10. Conical Cover



The function of the disc stack is to provide a very large surface area where the separation takes place. The layout, shape and design of the disc stack allows the separation of liquids to take place. The solids collect at the solids holding space by centrifugal force and are discharged intermittently under program control.

The separated liquid(s) travel up the discs to a special separation disc and this finally completes the separation before each of the two phases are expelled by a centripetal pump or by gravity, depending on the design.

Disc Stack Separators are used for;

- Separation of solids from liquids
- Separation of liquids from solids
- Dewatering biomass and suspensions
- Solids capture
- Extraction of valuable products



Precision Engineering Solutions

Material Quality

All parts which are directly in contact with the product are manufactured in Duplex Stainless Steel.

The bowl parts are forged to highest standards and this results in a seamless bowl design and a structure that eliminates micro cracks.

Desludging

The captured solid particles are discharged at intervals at full operating bowl speed. Depending on the machine model, full or partial discharges are performed by a hydraulic function that opens and closes the bowl.

Drive Mechanism

The rotating assembly is driven by an inverter controlled electric motor and a belt or gear driven spindle assembly coupled to the motor. The rotation speed is adjusted through the control panel. Anti-vibration mounts are fitted to the base frame which is bolted to floor to reduce vibration and noise.

Lubrication

The bearings and gears are independently lubricated from a single oil sump.

Frame

The lower and upper frames are manufactured by high quality casting. Depending on the application the frame can also be manufactured with stainless steel cladding.

Clean In Place (CIP)

The separators can be equipped with CIP system as an option.





Automation

All functions of the separator are executed by a PLC controller. The machine operating parameters and any malfunctions or alarms can be monitored through the operator panel display.

Advantages

- Optimal separation
- High performance/ price ratio
- Trouble free operation

Expertise in New Processes

Disc Stack Separators provide ideal solutions for many different processes and industrial applications. In case studies performed jointly with our customers and research groups, many manufacturing processes have been developed and optimized for various new and exciting products.

Many successful collaborations have started at the HAUS laboratory where product samples and process data are analyzed and the appropriate equipment and system solutions are proposed. On-site tests and trials are performed using our fleet of mobile units to prove the processes at production scale.

The laboratory analysis not only looks at the separation characteristics of the product but also the abrasive and corrosive properties of product concerned. This, along with particle size distribution, density and viscosity enable HAUS technical experts to configure the ideal disc stack separator with the appropriate wear protection.



Application Areas of Disc Stack Separators



Fruit Juice

Removal of sediment and solid particles.



Milk

Clarification and skimming of milk and whey.

Industrial Applications

Separation and solids removal.



Edible Fats and Oils

Purification and removal of solids.



Mineral Oil

Purification of oil and the removal of solids and water.





ATEX (Ex-Proof) Disc Stack Separator

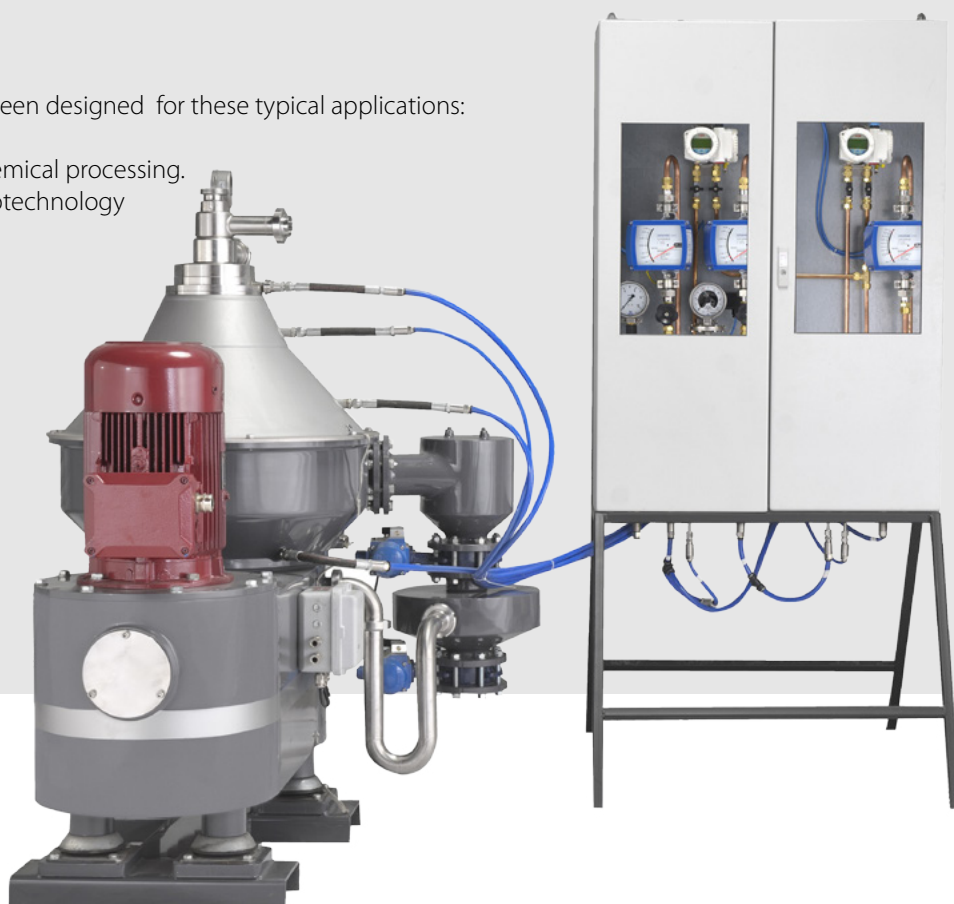
ATEX disc stack separators are designed for the processing of potentially flammable and combustible products. The working principle is to inject an inert gas into the separator and expelling any oxygen from the separator.

This means that combustion is impossible making the processing of flammable combustible and explosive products safe and practicable.

The control panel handles the distribution of the inert gas in predetermined quantities into the separator chambers where dynamic seals are fitted. All electrical equipment and connections are ATEX certified.

ATEX disc stack separators have been designed for these typical applications:

- Organic, inorganic and petrochemical processing.
- Pharmaceutical industry and biotechnology
- Extraction processes
- Mineral processes



After Sales Service

The Company provides comprehensive after sales service according to customer requirements. This ranges from routine servicing, attending breakdowns, repairs as necessary and technical support for a very wide range of industrial processes.

On request, periodic performance reviews are performed on-site for mechanical condition and plant performance. This may be as part of an annual maintenance agreements or on request. Planned maintenances can significantly reduce machine down times and increase the production capacity.



Product Range and Models

Model	Hydraulic Capacity m ³ /h	Bowl Volume Ltrs	Solid Volume Ltrs	Max. Bowl Speed Rpm	Motor Power kW	Length mm	Width mm	Height mm	Weight kg
M Series Mineral Oil Applications									
MBA 3162-30	8	4	2	10000	7,5	1100	512	998	330
MGA 5044-10	15	12	6,5	5200	11	1450	955	1565	1140
MGA 5032-10	15	12	6,5	5200	11	1450	955	1565	1140
MGA 4032-10	7,5	7	3,5	6500	7,5	1110	800	1645	800
MGA 5034-10	15	12	6,5	5200	11	1450	955	1565	1140
MGA 4034-10	7,5	7	3,5	6500	7,5	1110	800	1645	800
MBA 5432-30	22	20	10	6800	22	1417	1208	1710	1400
I Series Industrial Applications									
IBA 3131-30	8	4	2	10000	7,5	1100	512	998	330
IGA 4031-10	7,5	7	3,5	6500	7,5	1110	800	1645	800
IGA 5031-10	15	12	6,5	5200	11	1450	955	1565	1140
IBA 5431-30	22	20	10	6800	22	1417	1208	1710	1400
F Series Food Applications									
FBA 3131-30	8	4	2	10000	7,5	1100	512	998	330
FGA 4031-10	7,5	7	3,5	6500	7,5	1110	800	1645	800
FBA 5431-30	22	20	10	6800	22	1417	1208	1710	1400
MAX Series Milk Applications									
MAXCREAM 3T	8	4	1,2	10000	7,5	1100	512	998	330
MAXCREAM 5T	17	13	4,5	7700	11,5	2200	1020	1916	1300
MAXCREAM 10T	17	13	4,5	7700	15	2200	1020	1916	1300
MAXCREAM 15T	17	13	4,5	7700	18,5	2200	1020	1916	1300
MAXCLEAN 5T	16	13	5,5	7700	11,5	2200	1020	1916	1300
MAXCLEAN 10T	16	13	5,5	7700	15	2200	1020	1916	1300
MAXCLEAN 15T	16	13	5,5	7700	18,5	2200	1020	1916	1300

The stated capacities are only for guidance. The actual capacities will depend on the characteristics of the product concerned and process conditions. Our technical experts will be pleased to advise.



M Series

Mineral Oil Applications

MBA 3162-30
MGA 5044-10
MGA 5032-10
MGA 4032-10
MGA 5034-10
MGA 4034-10
MBA 5432-30



I Series

Industrial Applications

IBA 3131-30
IGA 4031-10
IGA 5031-10
IBA 5431-30



F Series

Food Applications

FBA 3131-30
FGA 4031-10
FBA 5431-30



MAX Series

Milk Applications

MAXCREAM 3T
MAXCREAM 5T
MAXCREAM 10T
MAXCREAM 15T
MAXCLEAN 5T
MAXCLEAN 10T
MAXCLEAN 15T

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