



FENIX™



Continuous

Solid-Liquid Separation

Easy & Effective



FXPusher™

Fenix™ Pusher Centrifuge for Continuous Solid-Liquid Separation

Pusher centrifuge is a continuous filtering device used for solid-liquid separation which finds extensive use in chemical, pharmaceutical, food (common salt) and mineral industries. Pushers have been in use for more than half a century for dewatering relatively large, free-draining crystals and other solids.

Various types of centrifuges are available in the market, and each type has certain advantages over a specific range of process variables. Pusher centrifuge is known to be highly effective for feeds of wide ranging (i) solid-content and (ii) particle size from about 80 microns to a few millimeters.

It has an axially mounted filtering screen made of trapezoidal bars. The slurry is fed into the narrower end of the screen. Due to centrifugal action the solid forms a cake on the screen and the liquid separates out as filtrate. A reciprocating piston pushes forward the cake. The stroke of the piston stops just short of the wider end of the screen. This enables a thick layer of cake to remain at the discharge end which serves as a rim, preventing short-circuiting of the slurry.

The mechanism is such that when the pusher is in back position, a wedge slot opens allowing the slurry to enter the screen chamber and when the pusher moves forward, the feed is stopped. The deposited wet cake becomes progressively drier under the centrifugal force as it moves forward towards the discharge end.

Centrifugal Separation Technology with Guaranteed Endurance:

Fenix pusher centrifuge ensures maximum online availability with minimum maintenance and low floor-space requirement in most solid/liquid separation processes.

Used in diverse industry sectors such as bulk chemicals, pharmaceuticals, mining and minerals, common salt (sodium chloride), plastics processing, fiber industry, etc., pusher centrifuges offer a host of advantages.

- Increased performance with high product quality through proper selection of the basket configuration, feed accelerator and screens
- Choice of drives: Mechanical and hydraulic drives are available for greater flexibility of operation
- Simple maintenance through service-friendly design
- Quick installation on resilient vibration dampers



Pusher Operation:

Briefly, here's how a Fenix Pusher Centrifuge operates:

Solids collect on the screen and feed liquors drain through.

The pusher plate rotates with the basket and reciprocates.

On the forward stroke, the plate pushes solids along the screen, consolidating the solids into a uniform cake. On the reverse stroke, fresh screen is exposed and more slurry is deposited.

Cake dries as it moves along the length of the screen and wash liquor may be applied to remove impurities.

Cake is pushed off the discharge end of the screen and directed to the collection chute for downstream processing.



Main Applications:

ABS, adipic acid, ammonium chloride, ammonium sulfate, borax, calcium nitrate, common salt, cellulose acetate, dichlorobenzene, ferrous sulphate, hexamine, hydroquinone, lithium compounds, nickel sulphate, nitrocellulose, oxalic acid, potassium carbonate, potassium chloride, sodium chloride, sodium bicarbonate, sodium carbonate, sodium chlorate, sodium cyanide, urea and in general ANY crystalline inorganic salt.

Slower speed leads to better economics.

In centrifuge operation, slower rotating speeds can significantly increase the operational life of expensive components and reduce the risk of machine failure. Lower speeds can also mean reduced energy requirements.

Thicker cake results in a more pure cake.

Cake thickness increases in proportion to increased basket length. A thicker cake is more pure than a thinner cake because impurities typically tend to collect near the screen surface.

Advantages

Simple & continuous operation
High throughput
High yields
High wash efficiency
Low energy consumption
No spillage
Eliminates manual handling
Low floor space requirement
Maintenance : simple & low-cost

Features

Process : Continuous
Solids content : >20% by wt
Average particle size : 80 - 2000 μm
Solids throughput : Up to 25,000 kg/hr
Solids recovery : >98%
MOC : Stainless Steel, special materials

Limitations

Minimum particle size : 50 μm
Maximum particle size : About 2000 μm
Feed requirement : High solid-content

Main Components & Spares

Shaft Baskets

Feed Funnel

Rotating Screens or Sieves

Pusher plate

All major components and spares are available from Fenix™ on order.



SPECIFICATIONS : PUSHER CENTRIFUGE MODELS

	FXPusher : P1	FXPusher : P-2	FXPusher : P-3	FXPusher : P-4	FXPusher : P-5	FXPusher : P-6
01 Basket Dia, mm	140/180	180/230	230/300	290/360	410/500	560/630
02 Pusher Stroke, mm	34	35	50	50	50	50
03 Max Speed, rpm	3000	3000	3000	3000	2500	1900
04 Mechanism	Mechanical	Mechanical	Hydraulic	Hydraulic	Hydraulic	Hydraulic
05 Operating Pr., bar	NA	NA	15	15	20	85
06 Motor Power, kW	1.5	2.2	7.5	7.5 / 11	18	30
07 Rotor Motor, kW	2.2	3.7	11	11	22	30
08 Throughput, kg/hr *	400	1000	3000	6000	12500	25000
09 Machine Wt, kg	750	1000	2750	3500	4500	5000
10 Size, mm [LxHxW]	1500x700x1000	1800x865x1250	2550x1350x1400	2650x1400x1400	3450x1800x1600	3500x1450x1800

*Basis of this throughput : Feed : 50 wt % salt-water slurry. Product : Crystalline salt (NaCl), ~3% moisture content, bulk density ~1125 Kg/m³ Product Size : 99% of product is 100 mesh or larger



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