



PUSHER CENTRIFUGE

for continuous solid-liquid separation

SEPTTECHNIK

Centrifuge Technology

SEPTECHNIK pusher centrifuges are continuous type filtration centrifuge known for their reliable performance at high capacities. They are used in many processes, bulk chemicals, fine chemicals, agro chemicals, pharmaceuticals, fertilizers, salt industries, mining & minerals, fiber industries, food industries, nuclear power, textiles & papers, pesticides and plastic industries.



Septechnik pusher centrifuge maximum solid-liquid separation efficiency....

MAIN APPLICATION

- Bulk chemicals
- Agro chemicals
- Pharmaceuticals
- Fertilizers
- Salt industries
- Mining & minerals
- Fiber industries
- Food industries
- Nuclear power
- Textiles industries
- Paper industries
- Plastic industries

MAIN ADVANTAGES

- Continuous separation
- Lower power energy
- Higher centrifugal force (g)
- Lower residual moisture
- Higher throughput
- Higher washing efficiency
- Higher product quality
- Higher solids recovery
- Consistence product quality
- Minimum floor space
- Low maintenance cost
- Low vibration on floor

PROCESSING PARAMETERS

- **Solids content**
> 20% w/w
- **Average particle size**
50 - 5000 micron
- **Solids throughput**
Up to 90 t/h
- **Solids recovery**
> 98%

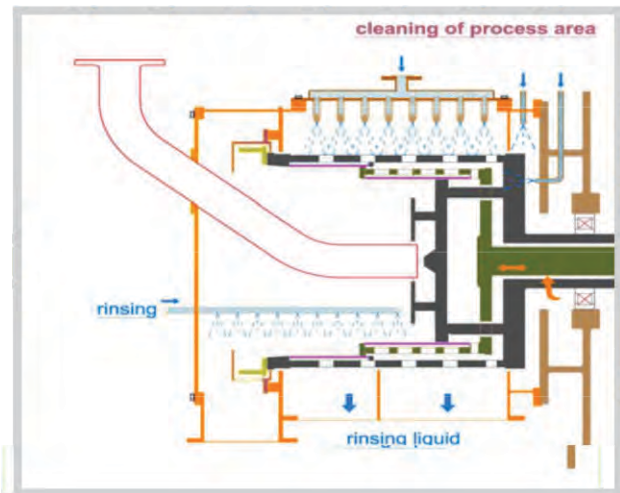
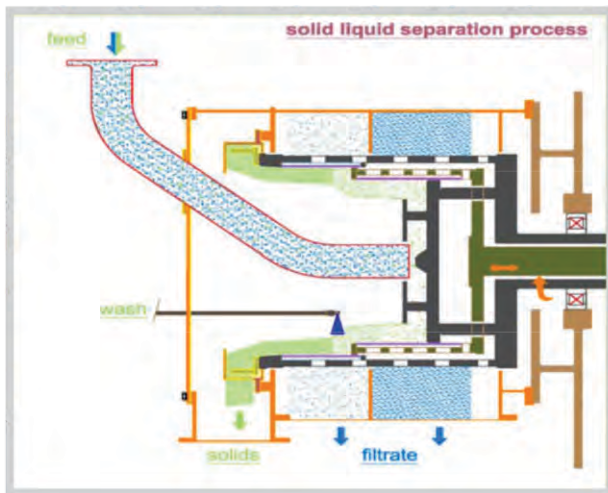
SOLIDS CONCENTRATION

- **Crystalline products**
20 - 90% w/w
- **Fibrous products**
2 - 12% w/w
- **Plastic products**
5 - 25% w/w

MATERIAL OF CONSTRUCTION

- Stainless steels
- Duplex steels
- Nickel based alloys
- Titanium

Septechnik pusher centrifuge operation....



Slurry inlet

Feed slurry is introduced via a feed pipe into the rotating feed distribution system. A screw conveyor is used for non-pumpable products.

Slurry distribution

The distributor ensures a uniform product acceleration and distribution over the entire periphery of the sieves of the 1st stage basket.

Pre. Filtration (1st stage)

Solids collect on the screen and approx. 80% of the liquid is separated out in this stage. The 1st stage basket is rotating as well as reciprocating, hence built-up solids cake is pushed along the screen towards 2nd stage.

Final Filtration (2nd stage)

The cake is pushed in annular sections by each pusher movement from the 1st basket to 2nd basket.

Cake washing

Impurities can be washed out from the cake by spraying suitable wash liquor continuously at the most optimal position by several adjustable spray nozzles.

Solid discharge

After the 2nd stage basket, the solids leave the centrifuge via volute chamber and process housing. It is important that the product is ejected without product congestion or deposits.

Process housing

The filtrate (mother liquor + wash liquor) is collected in the process housing and drawn off. Depending on the application, different process housings and suitable cyclones are used.

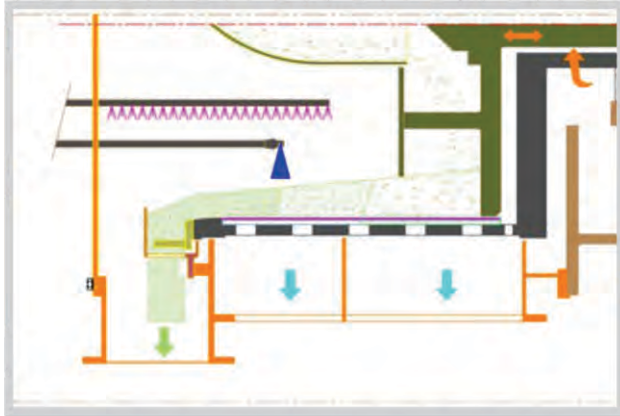
Filtrate separation

If necessary, specific design of process housing with partitions can be useful to separate different quality filtrate. There will be some intermixing of filtrate and 100% separation is not possible. Such separated filtrate can be used for counter flow washing.

Cleaning / Rinsing

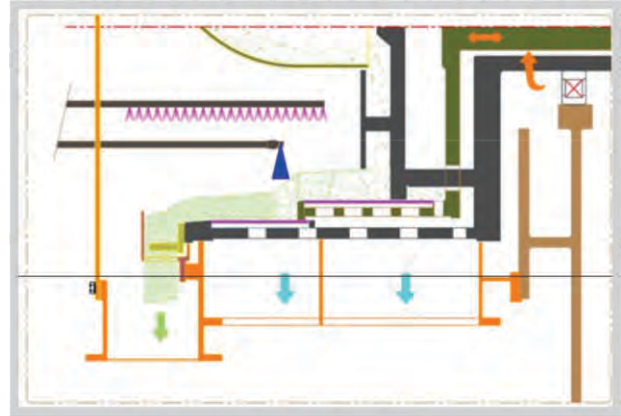
Cleaning of process area is very important. Periodic flushing prevents the formation of unwanted solid cake at basket bottom side and also prevents choking of screens. It can be cleaned automatically via a wide range of CIP nozzles provided at basket side and on process housing.

Septechnik pusher centrifuge available basket design....



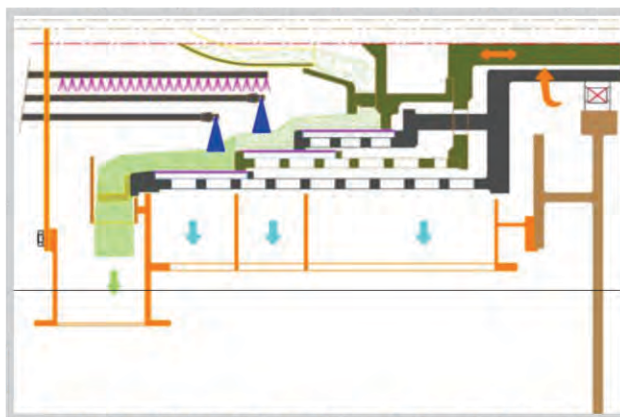
Single stage basket

- for bigger crystal size (Ave. 3 - 10 mm)
- cake washing is not necessary
- can maximize solids volumetric capacity
- minimum solid losses
- higher solids recovery



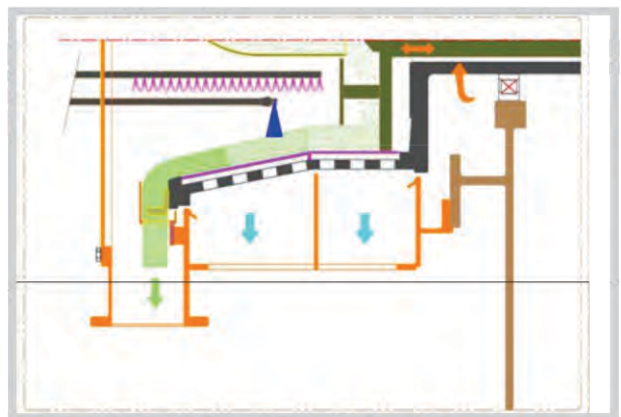
Double stage basket

- most common application
- for medium crystal size (< 100 micron)
- better cake washing efficiency
- less solids losses
- Higher solids recover



Triple stage basket

- specific separation application
- for medium crystal size (< 50 micron)
- higher cake washing efficiency
- higher product quality
- Higher solids recover



Cylindrical conical basket

- specific separation application
- for medium crystal size (< 50 micron)
- higher cake washing efficiency
- higher product quality
- Higher solids recover

Septechnik pusher centrifuge -

MP - 100 Mechanical pusher centrifuge (Lab scale purpose)	
Basket diameter	100 mm
Operation mode	continuous
Slurry feeding	feed pipe
Solid discharge option	full discharge
Number of stages	1 / 2
Basket type	cylindrical
Max. rotor speed	3500 rpm
Max. pusher frequency	20 - 40 per minutes - adjustable
Max. centrifugal force (g)	680
Electrical motor rating, main basket rotation	1.5 hp x 2800 rpm - foot
Electrical motor rating, pusher(gear box)	1 hp x 1400 rpm - foot
Dimensions (L x W x H)	750 X 450 X 380
@ Weight basic centrifuge	150 kg.
NaCl output capacity max. (depending on feed condition)	0.05 t/h

MP - 150 Mechanical pusher centrifuge (Lab scale purpose)	
Basket diameter	150 mm
Operation mode	continuous
Slurry feeding	feed pipe
Solid discharge option	full discharge
Number of stages	1 / 2
Basket type	cylindrical
Max. rotor speed	3200 rpm
Max. pusher frequency	30 - 60 per minutes - adjustable
Max. centrifugal force (g)	850
Electrical motor rating, main basket rotation	3 hp x 2800 rpm - foot
Electrical motor rating, pusher(gear box)	1.5 hp x 1400 rpm - foot
Dimensions (L x W x H)	1150 x 570 x 530
@ Weight - basic centrifuge	280 kg.
NaCl output capacity max. (depending on feed condition)	0.2 t/h

HP - 200 Hydraulic pusher centrifuge (Pilot plant purpose)	
Basket diameter	200 mm
Operation mode	continuous
Slurry feeding	feed pipe
Solid discharge option	full discharge / partially open
Number of stages	1 / 2
Basket type	cylindrical / conical
Max. rotor speed	3200 rpm
Max. pusher frequency	50 - 80 per minutes - adjustable
Max. centrifugal force (g)	1140
Electrical motor rating, main basket rotation	5 hp x 2800 rpm - foot
Electrical motor rating, pusher (oil pump)	5 hp x 2800 rpm - flange
Dimensions (L x W x H)	1700 x 1025 x 950
@ Weight - basic centrifuge (without oil)	1000 kgs.
NaCl output capacity max. (depending on feed condition)	0.6 t/h

Technical specification....

HP - 250 Hydraulic pusher centrifuge	
Basket diameter	250 mm
Operation mode	continuous
Slurry feeding	feed pipe / feed screw conveyor
Solid discharge option	full discharge / partially open
Number of stages	1 / 2
Basket type	cylindrical / conical
Max. rotor speed	3000 rpm
Max. pusher frequency	50 - 90 per minutes - adjustable
Max. centrifugal force (g)	1250
Electrical motor rating, main basket rotation	7.5 hp x 2800 rpm - foot
Electrical motor rating, pusher (oil pump)	5 hp x 2800 rpm - flange
Dimensions (L x W x H)	1700 x 1025 x 950
@ Weight - basic centrifuge (without oil)	1100 kg.
NaCl output capacity max. (depending on feed condition)	1.2 t/h

HP - 300 Hydraulic pusher centrifuge	
Basket diameter	300 mm
Operation mode	continuous
Slurry feeding	feed pipe / feed screw conveyor
Solid discharge option	full discharge / partially open
Number of stages	1 / 2
Basket type	cylindrical / conical
Max. rotor speed	2800 rpm
Max. pusher frequency	60 - 90 per minutes - adjustable
Max. centrifugal force (g)	1300
Electrical motor rating, main basket rotation	10 hp x 2800 rpm - foot
Electrical motor rating, pusher (oil pump)	7.5 hp x 2800 rpm - flange
Dimensions (L x W x H)	2100 x 1200 x 1075
@ Weight - basic centrifuge (without oil)	1400 kg.
NaCl output capacity max. (depending on feed condition)	2.4 t/h

HP - 350 Hydraulic pusher centrifuge	
Basket diameter	350 mm
Operation mode	continuous
Slurry feeding	feed pipe / feed screw conveyor
Solid discharge option	full discharge / partially open
Number of stages	1 / 2
Basket type	cylindrical / conical
Max. rotor speed	2500 rpm
Max. pusher frequency	60 - 90 per minutes - adjustable
Max. centrifugal force (g)	1215
Electrical motor rating, main basket rotation	10 hp x 2800 rpm - foot
Electrical motor rating, pusher (oil pump)	7.5 hp x 2800 rpm - flange
Dimensions (L x W x H)	2100 x 1200 x 1100
@ Weight - basic centrifuge (without oil)	1600 kg.
NaCl output capacity max. (depending on feed condition)	3.5 t/h

Septechnik pusher centrifuge -

HP - 400 Hydraulic pusher centrifuge	
Basket diameter	400 mm
Operation mode	continuous
Slurry feeding	feed pipe / feed screw conveyor
Solid discharge option	full discharge / partially open
Number of stages	1 / 2 / 3
Basket type	cylindrical / conical
Max. rotor speed	2200 rpm
Max. pusher frequency	60 - 90 per minutes - adjustable
Max. centrifugal force (g)	1075
Electrical motor rating, main basket rotation	20 hp x 2800 rpm - foot
Electrical motor rating, pusher (oil pump)	7.5 hp x 2800 rpm - flange
Dimensions (L x W x H)	2350 x 1400 x 1250
@ Weight - basic centrifuge (without oil)	2000 kg.
NaCl output capacity max. (depending on feed condition)	5.0 t/h

HP - 500 Hydraulic pusher centrifuge	
Basket diameter	500 mm
Operation mode	continuous
Slurry feeding	feed pipe / feed screw conveyor
Solid discharge option	full discharge / partially open
Number of stages	1 / 2 / 3
Basket type	cylindrical / conical
Max. rotor speed	1800 rpm
Max. pusher frequency	70 -100 per minutes - adjustable
Max. centrifugal force (g)	900
Electrical motor rating, main basket rotation	30 hp x 2800 rpm - foot
Electrical motor rating, pusher (oil pump)	10 hp x 2800 rpm - flange
Dimensions (L x W x H)	2500 x 1400 x 1300
@ Weight - basic centrifuge (without oil)	2500 kg.
NaCl output capacity max. (depending on feed condition)	10.0 t/h

HP - 600 Hydraulic pusher centrifuge	
Basket diameter	600 mm
Operation mode	continuous
Slurry feeding	feed pipe / feed screw conveyor
Solid discharge option	full discharge / partially open
Number of stages	1 / 2 / 3
Basket type	cylindrical / conical
Max. rotor speed	1500 rpm
Max. pusher frequency	70 - 100 per minutes - adjustable
Max. centrifugal force (g)	750
Electrical motor rating, main basket rotation	40 hp x 1400 rpm - foot
Electrical motor rating, pusher (oil pump)	20 hp x 2800 rpm - flange
Dimensions (L x W x H)	2600 x 1525 x 1400
@ Weight - basic centrifuge (without oil)	3400 kg.
NaCl output capacity max. (depending on feed condition)	15.0 t/h

Technical specification....

HP - 700 Hydraulic pusher centrifuge	
Basket diameter	700 mm
Operation mode	continuous
Slurry feeding	feed pipe / feed screw conveyor
Solid discharge option	full discharge / partially open
Number of stages	1 / 2 / 3
Basket type	cylindrical / conical
Max. rotor speed	1300 rpm
Max. pusher frequency	70 - 100 per minutes - adjustable
Max. centrifugal force (g)	660
Electrical motor rating, main basket rotation	50 hp x 1400 rpm - foot
Electrical motor rating, pusher (oil pump)	25 hp x 2800 rpm - flange
Dimensions (L x W x H)	3100 x 1850 x 1600
@ Weight - basic centrifuge (without oil)	5200 kg.
NaCl output capacity max. (depending on feed condition)	20.0 t/h

HP - 800 Hydraulic pusher centrifuge	
Basket diameter	800 mm
Operation mode	continuous
Slurry feeding	feed pipe / feed screw conveyor
Solid discharge option	full discharge / partially open
Number of stages	1 / 2 / 3
Basket type	cylindrical / conical
Max. rotor speed	1200 rpm
Max. pusher frequency	60 - 90 per minutes - adjustable
Max. centrifugal force (g)	640
Electrical motor rating, main basket rotation	75 hp x 1400 rpm - foot
Electrical motor rating, pusher (oil pump)	40 hp x 2800 rpm - flange
Dimensions (L x W x H)	3400 x 1900 x 1600
@ Weight - basic centrifuge (without oil)	6000 kg.
NaCl output capacity max. (depending on feed condition)	25.0 t/h

HP - 1000 Hydraulic pusher centrifuge	
Basket diameter	1000 mm
Operation mode	continuous
Slurry feeding	feed pipe / feed screw conveyor
Solid discharge option	full discharge / partially open
Number of stages	1 / 2 / 3
Basket type	cylindrical / conical
Max. rotor speed	950 rpm
Max. pusher frequency	60 - 90 per minutes - adjustable
Max. centrifugal force (g)	500
Electrical motor rating, main basket rotation	120 hp x 1400 rpm - foot
Electrical motor rating, pusher (oil pump)	60 hp x 2800 rpm - flange
Dimensions (L x W x H)	4200 x 2500 x 1950
@ Weight - basic centrifuge (without oil)	9000 kg.
NaCl output capacity max. (depending on feed condition)	45.0 t/h

Application....

ABS polymerisate	Linters	Pulp chips with caustic soda
Activated carbon	Lithium carbonate	Rape coarse grain
Adipic acid	Lithium chloride	Resin
Aluminium chloride	Lithium hydroxide	Rock phosphate
Ammonium bicarbonate	Lysine	Rock salt
Ammonium chloride	Magnesium carbonate	Sea salt
Ammonium hydrogen carbonate	Magnesium hydroxide	Seed grains
Ammonium phosphate	Magnesium sulphate	Silicon fluoride
Ammonium sulphate	Manganese sulphate	Silver nitrate
Animal bones	Mono ammonium phosphate	Soda industries
Ascorbic acid	Mono chloro acetic acid	Sodium acetate trihydrate
Barium chloride	Monopentaerythritol	Sodium bicarbonate refined
Benzoic acid	Melamine	Sodium bisulphite
Biopolymer	Met Phormin	Sodium carbonate monohydrate
Borax	Methacrylamide	Sodium chlorate
Boric acid	Methylmethacrylamide	Sodium chloride
Calcium carbonate	Molasses	Sodium citrate
Calcium formate	Nickel chloride	Sodium cyanide
Calcium nitrate	Nickel sulphate	Sodium dicarbonate
Calcium titrate	Nitro cellulose	Sodium dichromate
Caprolactam	NPK fertilizers	Sodium formate
Cellulose derivates	Nylon 6 chips	Sodium hydrogen sulphite
Chloride hydrate	Oxalic acid	Sodium hydroxide
Chlorine hydrate	Paper fiber	Sodium meta bisulphite
Citric acid	Para amino phenol	Sodium nitrate
Coal sludge	Para nitro aniline	Sodium nitrite
Coffee extract	Paracetamol	Sodium perborate
Coffee grounds	Paracresol	Sodium phosphate
Copper sulphate pentahydrate	Pentaerythritol	Sodium sesquicarbonate
D.C.D.P. sulphon	Phosphate crude / raw	Sodium sulphate anhydride
Diammonium potassium	Phosphor gypsum	Sodium sulphate decahydrate
Dicalcium phosphate	Polyacrylate	Sodium sulphite
Dispersion rubber	Polyethylene - HDPE	Sodium thiosulphate
E.D.T.A.	Polyethylene terephthalate	Sorbic acid
Endosulfan	Polypropylene	Soya grain from ethanol
Ferrous sulphate	Polyvinyl butyral	Styrene acrylonitrile - SAN
Fibrous materials	Polyvinyl chloride	Sulfamic acid
Foodstuffs	Polystyrene	Tartaric acid
Fructose	Potash	T.B.A.B.
Furmaric acid	Potassium bicarbonate	Terephthalic acid
Gelatine	Potassium carbonate	Tin sulphate
Glass balls	Potassium chlorate	Trisodium phosphate
Glauber salt	Potassium citrate	Urea
Glycine	Potassium chloride	Urea ethylene
Hexamine	Potassium cyanide	Urea phosphate
HX sulphate	Potassium nitrate	Vinyl sulphon
Hydrazine hydrate	Potassium nitrite	Wool
Hydro carbon	Potassium phosphate	Zinc sulphate heptahydrate
Iron sulphate heptahydrate	Potassium pyrosulphate	Zinc sulphate monohydrate
Lactose	Potassium sulphate	2-4D acid
Lead nitrate	Plastics granules	MEE / ZLD Mixed salt

Septechnik pusher centrifuge for pharmaceutical application....

Design features

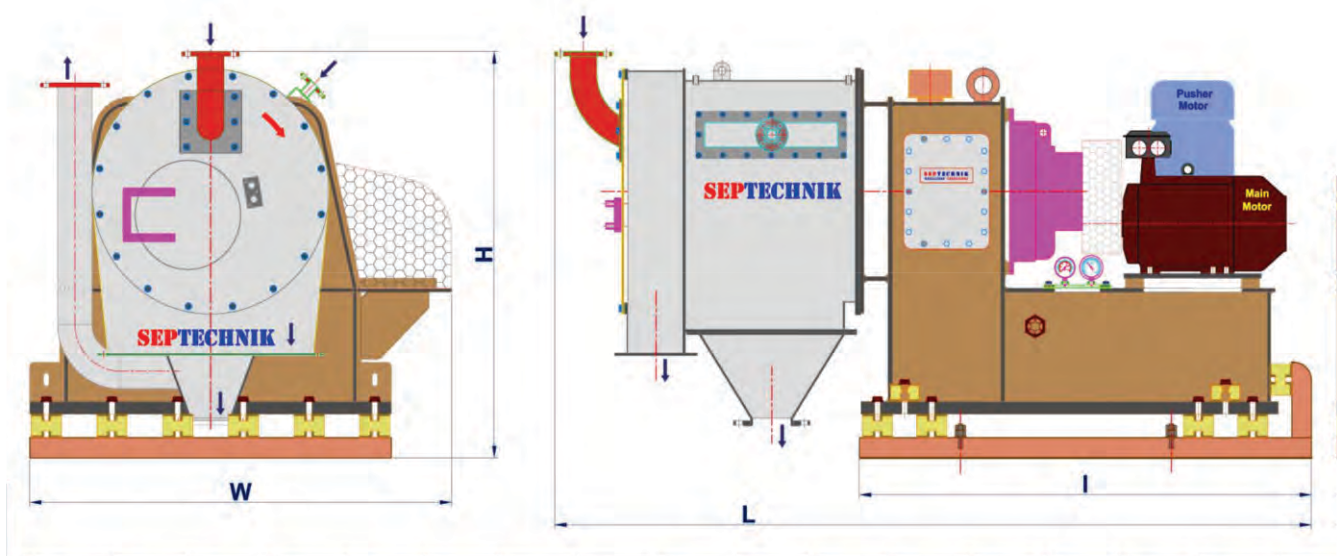
- Pharma design
- As per cGMP requirements
- CIP (clean in process) design
- N2 purging arrangement
- Minimum floor space requirement
- No rigid foundation required
- Smaller machine can operate on movable trolley
- Automation of machine as required

Process advantages

- Continuous in operation
- Higher throughput / capacity
- Consistence high product quality
- Higher washing efficiency with less quantity of washing media
- Lower residual moisture
- Reduced consumption of utilities
- No manual product handling
- Lower power consumption

Technical data....

Model	Basket diameter	L [mm]	I [mm]	W [mm]	H [mm]	Weight [kg]	Pusher drive
MP-100	100	750	385	450	380	150	mechanical
MP-150	150	1150	565	570	530	280	mechanical
HP-200	200	1700	960	1025	950	1000	hydraulic
HP-250	250	1700	960	1025	950	1100	hydraulic
HP-300	300	2100	1295	1200	1075	1400	hydraulic
HP-350	350	2100	1295	1200	1100	1600	hydraulic
HP-400	400	2350	1500	1400	1250	2000	hydraulic
HP-500	500	2500	1500	1400	1300	2500	hydraulic
HP-600	600	2600	1515	1525	1400	3400	hydraulic
HP-700	700	3100	1890	1850	1600	5200	hydraulic
HP-800	800	3400	2057	1900	1600	6000	hydraulic
HP-1000	1000	4200	2656	2500	1950	9000	hydraulic



Tests....

- **We can conduct basic tests in our test laboratory using world smallest Pusher centrifuge with small quantity of the products at our works.**
- **We have single / double / triple stages pusher centrifuges for commercial trial, which we can send at your plant for actual trial on chargeable basis.**
- **We can provide screw feeder arrangement on trial centrifuge in case of non flow able slurry / highly concentrated application.**
- **Our wide experience with substantial research & development effort enable to offer the best filtration solutions, which helps you to decide on correct separation equipments for your product.**

advice on separation processes

trial with your products

selection of most suitable model

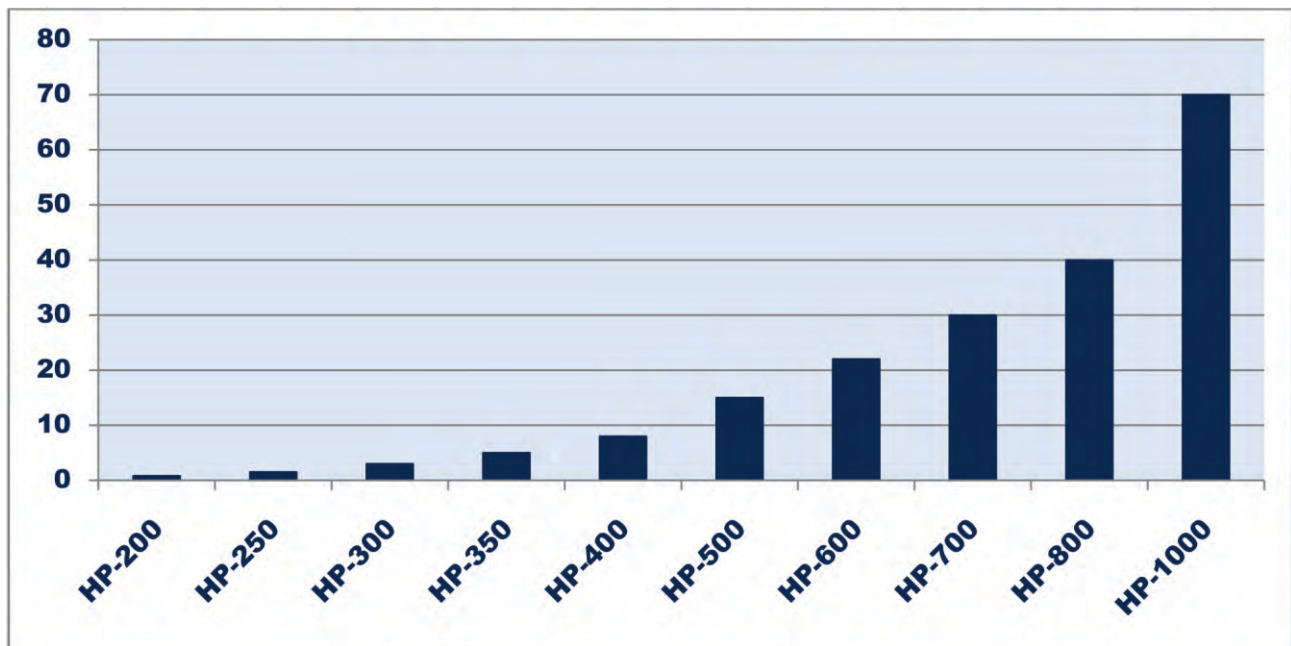
after sales & spare parts services

service support for other suppliers



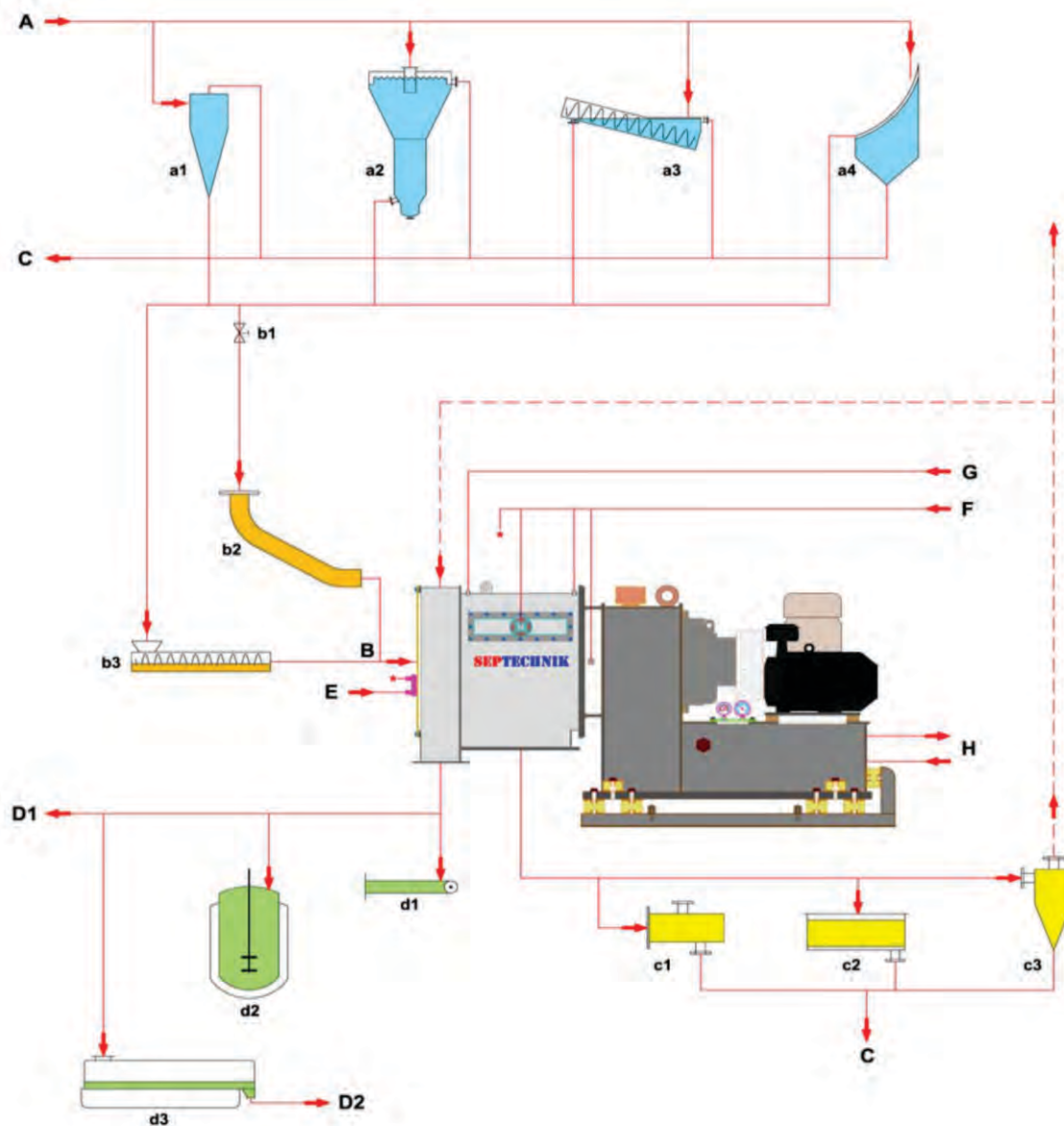
TAKE AN ADVANTAGES OF OUR EXPERIENCE

Typical throughput - salt (NaCl)



Pusher Centrifuge HP-800 for Sodium Chloride

Proposed flow diagram for pusher centrifuge operation....

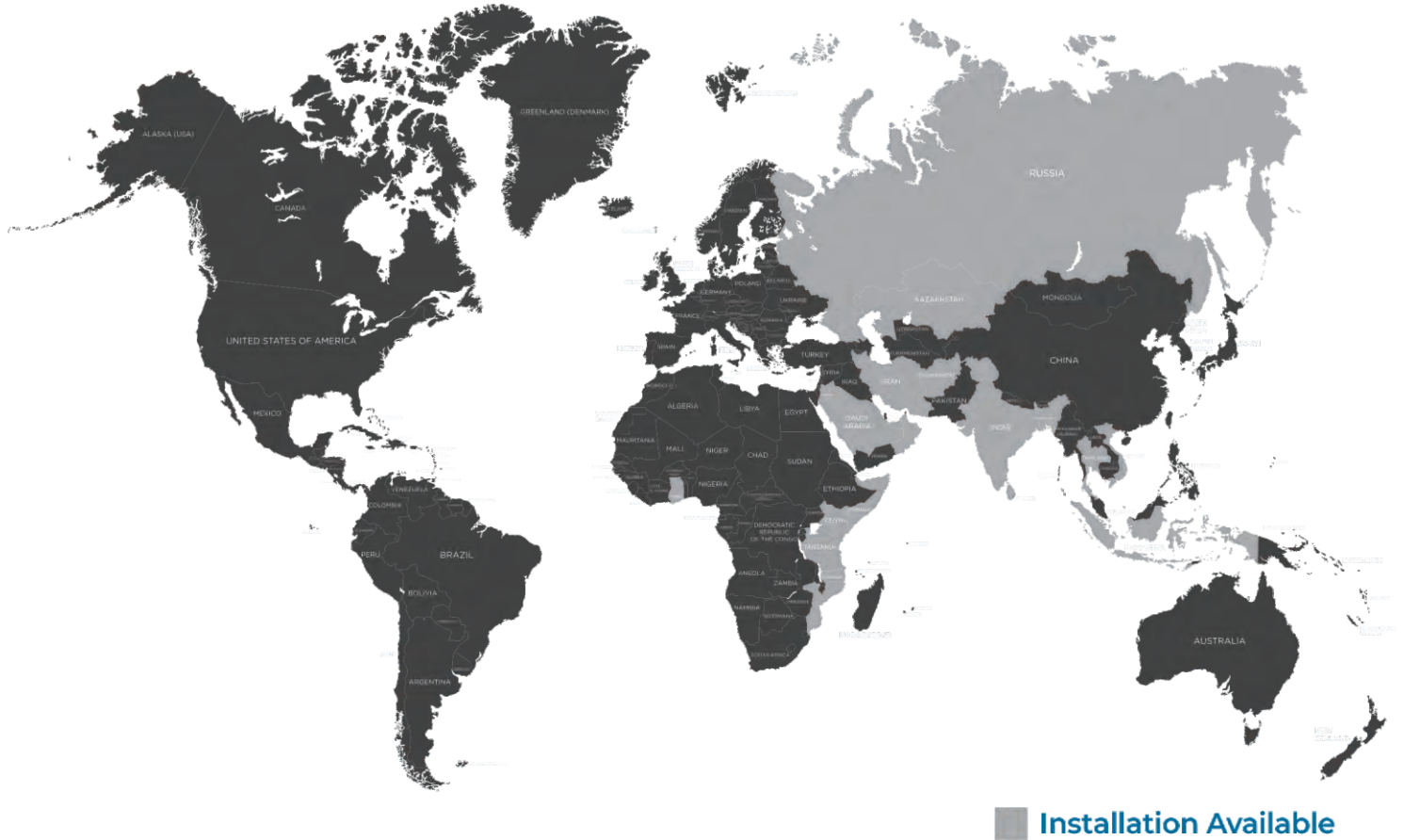


A original suspension / slurry
B suspension / slurry after thickening
C separated mother liquid / filtrate
D1 solids after centrifuge / wet solids
D2 solids after dryer / dry solids
E wash liquor for product
F cleaning / rinsing liquor
G nitrogen purging
H cooling water / oil cooler

a1 hydro cyclone
a2 static thickener
a3 inclined screw
a4 sieve bend / sieve thickener
b1 feed control valve
b2 feed through pipe
b3 feed through screw conveyor

c1 mother liquor / filtrate tank
c2 simple nutch filter
c3 ml / filtrate degassing - cyclone
d1 conveyer belt for wet solids
d2 re-slurring / further process
d3 continuous dryer

Septechnik pusher centrifuges worldwide



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INDIA'S LARGEST RANGE IN PUSHER CENTRIFUGES