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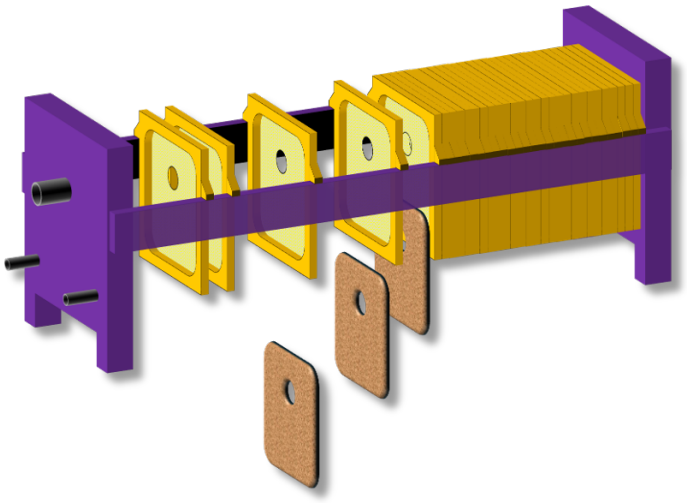
Sample download document using an example of 30,000 tpd (dry basis) and Diemme filter units.

Date: 2026-04-30



Notes/ Background

Please note that this is a sample download file from https://tailingsplant.app

We used filters from one of our sponsors, Diemme Filtration for this example. For more information on their portfolio, see the following link https://www.diemmefiltration.com/applications/mining-metallurgy-sector/

Process Design Criteria

Slurry

Parameter	Value	Units	Source
Solids Density (kg/m³)	2884	kg/m³	-
Liquid Density (kg/m³)	1005	kg/m³	-
Slurry Density (kg/m³)	1650.02	kg/m³	-
Percentage solids (% w/w)	60	% w/w	-
Solids Fraction	34.33	% v/v	Calculated

Daily Throughput - dry solids (tpd)

Parameter	Value	Units	Source
Daily Throughput - dry solids (tpd)	30000	t/d	Input
Expected Availability (in %)	100	%	Input
Required Hourly Capacity (tph)	1250	tph	Calculated

Summary of mass reporting

Parameter	Value	Units	Source
Solids	1250	tph	Calculated
Liquid	833.33	tph	Calculated
Slurry	2083.33	tph	Calculated

Summary of volume reporting

Parameter	Value	Units	Source
Volume Solids	433.43	m³/h	Calculated
Volume Liquids	829.18	m³/h	Calculated
Slurry	1262.61	m³/h	Calculated

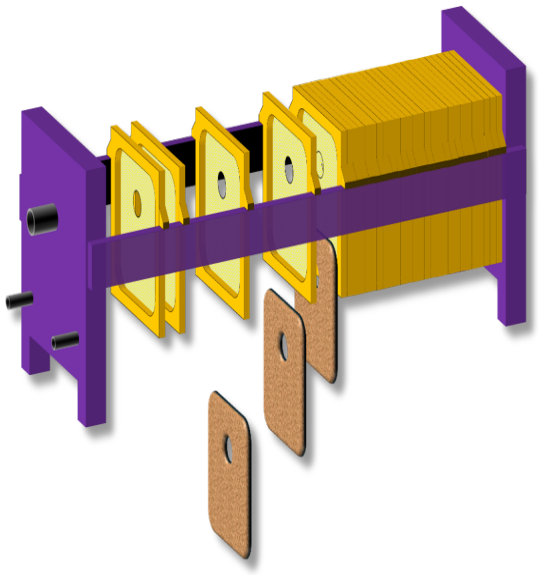
Comments

We have set Expected Availability at 100% purely for this example. See the table on the Filter Plant tab to see the uninterrupted hourly throughput per unit.

Validate Filter

Filter Description

Filter Presses incorporate a series of vertical plates arranged horizontally within a steel structure. Each plate is covered with a filter cloth, and when the plates are held together (usually by a hydraulic system) they form a set of sealed chambers, usually with cloth on each side. Slurry is pumped into these chambers, and water passes through the cloth while the solids are retained inside, forming a filter cake. This may be followed by a cake press (using rubber membranes) and/ or an air blow to remove water held within the cake. At a certain point (triggered by time or pressure), the system releases the plates, which then separate and let the cakes drop out. This is a batch process.



Operational Parameters

Parameter	Value	Units	Source
Filter Type	Filter Press	-	Input
Cake Thickness	50	mm	Input
Cake porosity	47	% v/v	Input
Total Cycle Time	15	min	Input
Solids Density (kg/m³)	2884	kg/m³	from PDC
Specific Capacity	153	kg/(m²·h)	Calculated

Comments

These are all reasonable parameters, but note that they must be checked with professional testwork.

Filter Plant

Filter model (vendor, model type, code):

Diemme

Filter choice

Parameter	Value	Units	Source
Filter Type	Filter Press	-	Input
Specific Capacity	153	kg/(m²·h)	Calculated
Total Cycle Time	15	min	Input
Machine filtration area (m²)	3800	m²	Calculated
Nominal throughput per unit	581.4	tph	Calculated
Required number of units	3	#	Calculated
Max Hourly Throughput	1745	tph	Calculated
Buffer Capacity	39.5	%	Calculated

Comments

With the filtration parameters from the previous page, the average uninterrupted hourly throughput for this unit is 576 tonnes per hour (dry basis).

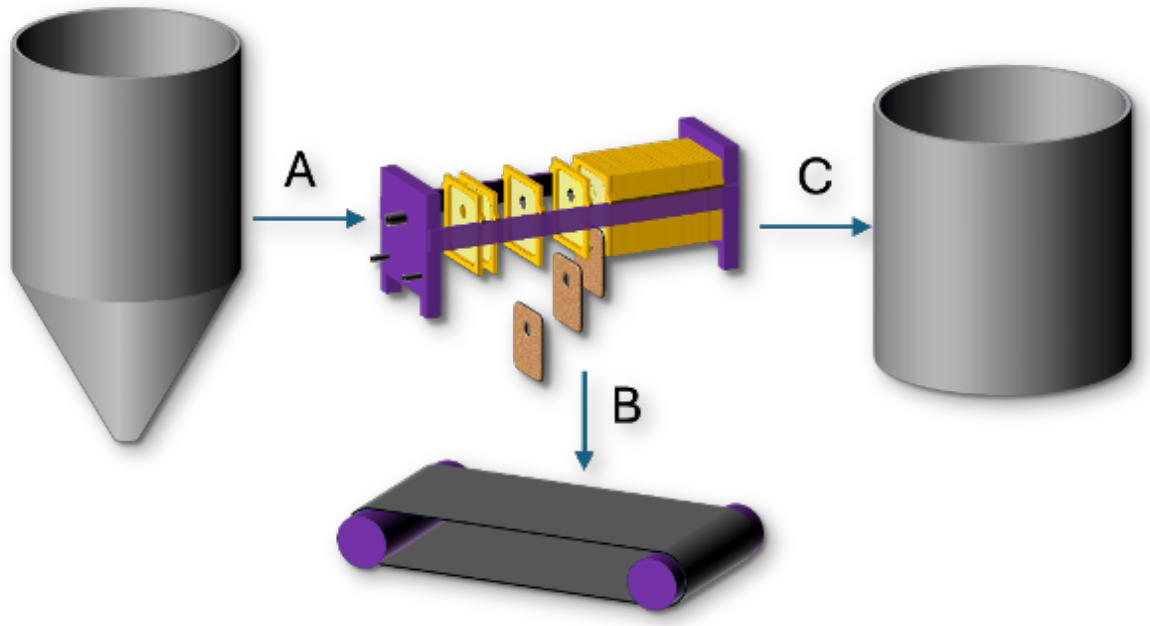
Water/Cake

Cake and Water Recovery information is very important

Cake Moisture and Water Recovery

Parameter	Value	Units	Source
Cake Moisture (%w/w)	14.9	% w/w	Input
Water Recovery	73.74	%	Calculated

Flow diagram



Summary of mass balance (tph)

	Slurry [A]	Cake [B]	Filtrate [C]
water	833.33	218.86	614.47
Solids	1250	1250	See Note 1.
air	-	-	-
Slurry	2083.33	-	-
filter cake	-	1468.86	-

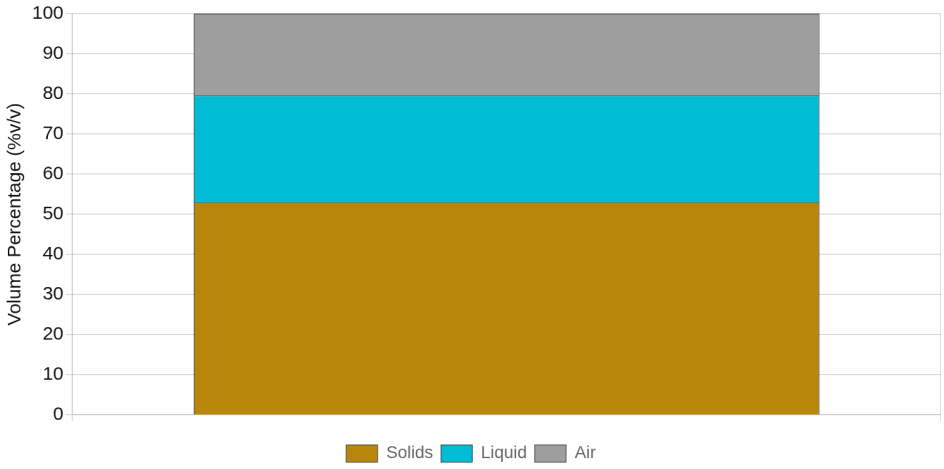
Note: There may be some solids in the filtrate, especially if media are torn. Check via testing.
Note: Compressed air or vacuum may be required for the filter to operate.
Note: Check the water required for washing/cleaning; reuse filtrate where possible.

Water/Cake continued

Filter cake and water balance

Parameter	Value	Units	Source
Cake Moisture (%w/w)	14.9	% w/w	Input
Geotech Water Content	17.5	%	Calculated
Cake Thickness	50	mm	Input
Cake porosity	47	% v/v	Input
Volume Solids	53	% v/v	Calculated
Volume Liquids	26.63	% v/v	Calculated
Volume Air	20.37	% v/v	Calculated
Cake bulk density (N.B. Undisturbed).	1796.15	kg/m³	Calculated

Cake Phase Volumes



Comments

Note that this is a conservative estimate for cake moisture. Testing with a representative slurry of your tailings is essential.

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Retic Systems

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