





	Decanter / centrifuge	Chamber filter press	Belt press (low pressure)	Belt press (high pressure)
Continuous operation	continuous	discontinuous	limited	limited
Flow rate	high	low	low	low
Total solid of cake	high	high	low	medium
Consistency of discharge material	from plastic to crumbling	squeezed	squeezed	squeezed
Maintenance rate	seldom	often	often	often
24-hour operation without supervision	possible	not possible	not possible	not possible
Energy consumption	medium	high	low	high
Required space	little	huge	high	high
Water consumption for cleaning	low	high (4 times)	medium	high (4 times)
Efforts	low	high	medium	high
Ventilation	low	high	medium	medium
Investment	medium	high	low	medium
Costs for peripheral devices	low	medium	medium	medium
Disposal costs	low	medium	medium	low
Maintenance costs	low	high	medium	medium
Sound level	high	medium	low	high
Bad smell	low (closed system)	tremendous	tremendous	tremendous
				
<p>A chamber filter press is a highly efficient, compact, dewatering device for separating solids from liquid slurries in the form of compressed cake. Its major components are a structured framework, filter chambers (formed by recess portion of Recessed plate system, or frames in plate and frame system), and filter cloth. Filter Press are separation devices used for solid or liquid separation that work on feed pressure or squeeze pressure to reduce liquid content in process or waste slurries or to reduce solid content in a product. A filter press consists of a series of horizontally arranged vertical filter plates, each covered with paper, felt medium or synthetic woven material. A mechanical structure called skeleton is used to support the filter plates and a closure mechanism provides the required force on the sealing faces of the plates to counteract the applied force of filtration(squeezing). The hydraulic cylinder controlling the follower plate presses the plates together creating a sealed unit. Each face of each plate is covered with a filter medium to form a series of perforated chambers into which process material is introduced under pressure. The liquid passes through the filter cloths on each chamber and is discharged through the filtrate discharge system. The filter medium retains suspended solid particulate. Solids content and remaining water build a cake on the surface of the filter cloth. The slurry is continuously fed under pressure to all chambers. This process continues until cake is compressed to maximum solids concentration. The pump is then shut off; hydraulic pressure is released, and follower plate is retracted. Plates are then separated and cake discharges by gravity into cake disposal container.</p> <p>A belt filter press is a sludge dewatering device that applies mechanical pressure to a chemically conditioned slurry, which is sandwiched between two tensioned belts, by passing those belts through a serpentine of decreasing diameter rolls. The machine can actually be divided into three zones: gravity zone, where free draining water is drained by gravity through a porous belt; wedge zone, where the solids are prepared for pressure application; and pressure zone, where medium, then high pressure is applied to the conditioned solids. Typically, a belt filter press receives slurry ranging from 1 - 4 % feed solids and produces a final product of 12 - 35 % cake solids. Performance depends on the nature of the solids being processed.</p> <p>Time and effort for cleaning and maintenance of filter presses is much more extensive than for centrifuges. Filter plates have to be purified manually. Replacement of filter cloths and plates (limited life time) requires shutdown of the machine and leads finally to discontinuous operation.</p>				