Table 13.2 Rotary Pressure Filter – operating parameters and statistics.

Rotary Pressure Filter		
Commercial introduction 1950s	MIN	MAX
Slurry volume required for lab-scale optimisation (20% solids content)	—	10 L
Pilot/Production scale equipment slurry throughput (20% solids content)	1 L h^{-1}	1500 L h^{-1}
Solids content	10%	60%
Filtration area	0.18 m^2	8.6 m^2
Max pressure differential (pressure version)	—	6.0 bar
Typical moisture content post filtration and drying	8%	10%
Residence time from slurry to discharge <8% moisture content	—	3 minutes
Cake thickness	5 mm	150 mm
Wash regime. Multi-wash and solvent exchange	1	2
Dead volume or heel	—	20 mm
Containment methods	Nitrogen purging operation in fume cupboard containment in glove box isolator	
Number of cGMP qualified processes	>10s	—
Status of cGMP qualification for API production	Current	
Cost of typical initial 2 years strategic spare parts	€20 000	€30 000

additional wash can be introduced between the discharge and feed filtration zones however, this reduces the product yield unless a separate isolation process is introduced to reclaim the solids.

RPFs are used within the pharmaceutical, food, cosmetic, chemical, bioprocessing and other industries. The cost of maintaining RPFs is relatively low considering the precise manufacturing procedures and level of complexity. The absence of linear sealing bellows and mechanical seals brings the cost of strategic spare parts dramatically down when compared to Agitated Nutsche Filters.

The BHS rotary pressure filter was invented by Dr Fest at BHS in the 1950s. BHS Sonthofen have further improved and optimised the rotary filter over the decades to provide a versatile pressure filtration and drying system. The details of the rotary pressure filter and typical operating parameters are shown in Table 13.2.

13.7.3 Indexing Belt Filter (BF)

The BHS indexing belt filter (type BF) is a continuously operating, horizontal vacuum filter used for the efficient and also gentle separation of sedimenting solids from suspensions. An image of a typical indexing belt filter is shown in Figure 13.16. The system is split into compartmental sections to facilitate the individual process steps. These steps or stations act as individual filters and discharge is semi-continuous.