

# *Horizontal Vacuum Belt Filters*



**WESTECH**

# Process Efficiency and Design Flexibility



WesTech Horizontal Belt Filters are designed and built on a tradition of engineering excellence. Extensive filtration experience gained over nearly half a century is drawn upon for each new project providing reliable operations and long service. WesTech provides expertise in the following industries, and many more.

- **Power (FGD Dewatering)**
- **Potash**
- **Steel Mills**
- **Municipal Sludge**
- **Chemical**
- **Agricultural**
- **Food Processing**
- **Tar Sands**
- **Minerals (Concentrate and Tailings)**



Horizontal belt filters are an ideal solution for applications with very large flow rates, stringent low cake moisture requirements and the need for highly efficient cake washing as a process step.

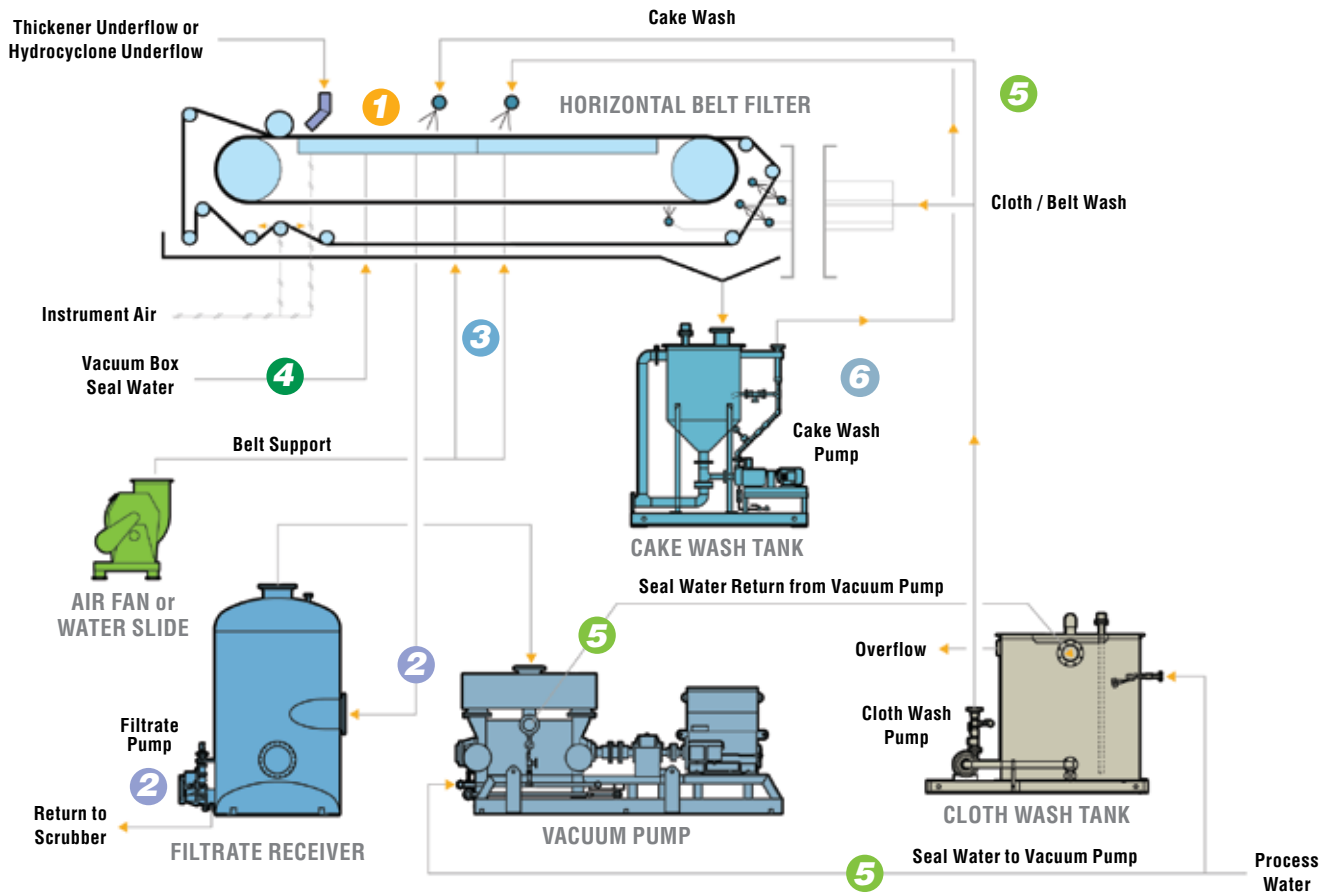
With extensive background in filtration technology, WesTech has successfully applied this experience to develop horizontal belt filters which excel in industry specific applications. WesTech offers sizes from lab-scale to 150m<sup>2</sup> filters. The minerals and power industries demand a very robust design and rigorous performance requirements. WesTech's Horizontal Belt Filter installations meet or exceed demanding production rates, low cake moisture and cake washing requirements, while minimizing process upsets. WesTech employs the right balance of conservative design and experience to provide a cost-effective and high performance filter.



Many of WesTech's horizontal vacuum belt filter improvements result from cooperation with engineers and operators at multiple installations. Making use of the right construction materials and process design, WesTech's Horizontal Belt Filter outperforms other types of vacuum filters in both throughput, low cake moisture, and optimized cake washing.



# Typical Equipment Flow Chart



- 1 The thickened underflow begins to dewater as soon as it reaches the belt. The unit can include a settling zone (without vacuum), initial vacuum zone, multiple washing stations, and further dewatering after washing and discharge.
- 2 Filtrate is drawn to the filtrate receiver and then pumped to the next process step.
- 3 An air box supports the belt to reduce friction allowing the belt to ride on a cushion of air. WesTech also manufactures systems utilizing water slides and or wear belts for support of the main transport belt.
- 4 Small amounts of water lubricate the vacuum seals (about 10 gpm), providing consistent vacuum.
- 5 Spent vacuum pump seal water washes the belt, cloth, and cake to conserve water. The vacuum pump increases the temperature of the water by 20-50 degrees Fahrenheit, improving washing and drying efficiency.
- 6 Spent cloth wash water and spent vacuum pump seal water can be applied as cake wash water.

**Variations of this flowsheet including a counter-current cake wash can be employed depending on particular needs and circumstances. The above description provides a good baseline for the dewatering flow sheet.**