

CHEMPLANT PRESSURE LEAF FILTERS FOR NICKEL REFINERIES

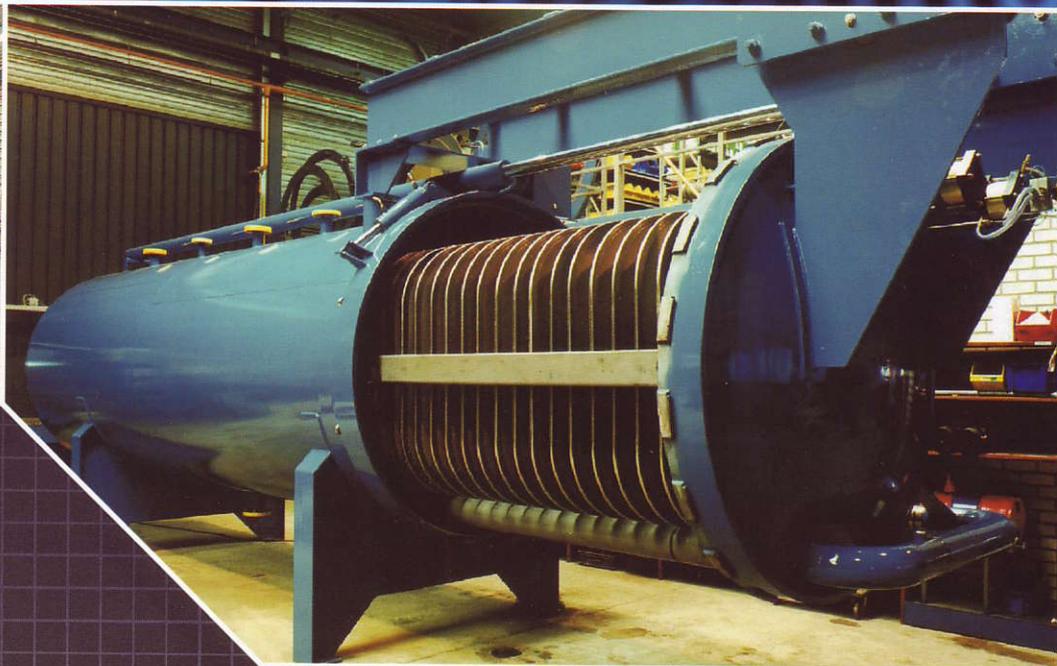
Introduction

Chemical Plant and Engineering (Chemplant) is a specialist engineering company involved in the design and manufacture of process equipment for over 50 years. Our product lines include filters (vacuum and pressure), agitators and powder mixers.

Chemplant has a long history of filter supply into demanding mineral processing applications but in recent years has developed a particular niche skill in this rapidly growing industry.



Retractable shell type (RS Model no's)



Retractable bundle type (RB Model no's)

Product Features

Chemplant has developed many features during the past 20 years to ensure we provide the best performance for Nickel Refineries.

Examples of these features include:

- Flexibility of Design
 - Filters are available in both retractable shell or retractable bundle configurations
 - Units can be supplied with or without filter bags depending on exact solids classification and filtrate quality requirement
- Materials of Construction
 - Generally supplied in 316 SS but higher alloys are available
- High Efficiency
 - Systems include a high capacity sluicing system which separates the cake from the leaf (or bag) and also flushes the cake pieces into the discharge openings
 - Wet cake discharge configurations do not require filter to be opened other than for maintenance
- Long Life
 - Leaf assemblies are multi layer construction for strength and superior wearing

Operation

The filter is fed with a fluid containing solids. In the filter, the solids are separated from the fluid by means of a filter septum which is supported in a filter element for easy handling. The solids build up a filter cake which increases the resistance of the filter. This results in an increasing pressure difference over the filter which can be measured by pressure sensors at the inlet and outlet of the filter.

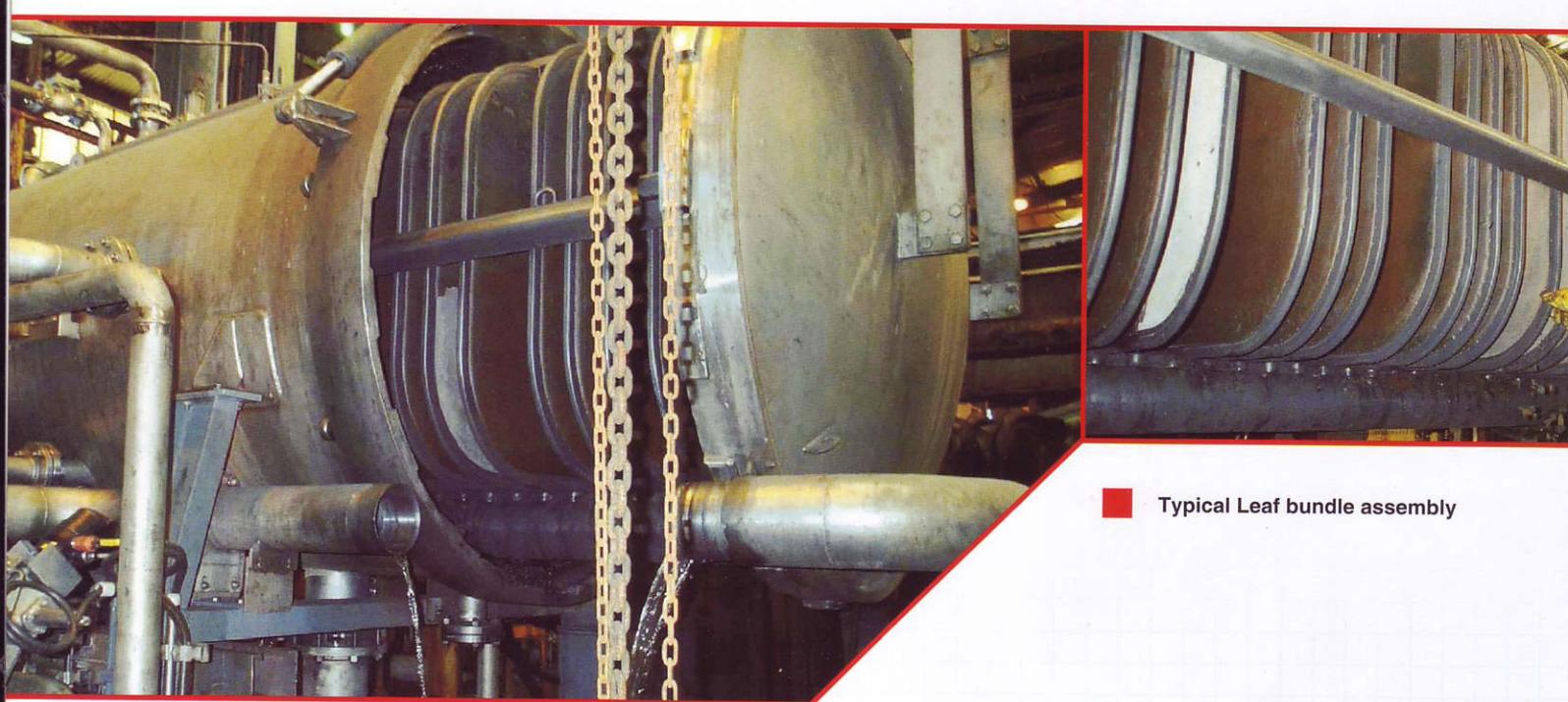
The filtration stage must be terminated when the maximum cake thickness or maximum pressure difference over the filter is reached.

After termination of the filtration stage, the filter cake needs to be removed by discharging the cake from the filter septum.

For cakes which are discharged in wet condition, the cake is sluiced from the filter septum by means of a rotating sluice header ensuring maximum leaf coverage.

In many applications, filter aids are used to build-up a precoat layer and / or to apply body feed, resulting in improved solids retention and cycle time.

Units supplied to WMC in 316 SS undergoing installation in Kwinana plant.



Typical Leaf bundle assembly

References

Chemplant has supplied many of the world's leading refineries.

• Western Mining	6 units (80 m ²)	Copper Sulphide and Mixed Sulphide
• Anaconda Nickel	6 units (60 m ²)	Refinery Polishing Filters
• Cawse Nickel	1 unit (30 m ²)	Crud Filtration
• Queensland Nickel	2 units (240 m ²)	Loaded Sulphide Liquor Filtration

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