

**SOLAFT**<sup>TM</sup>

FILTRATION SOLUTIONS

**NFM** 

National FILTER Media

**PrimaFlow**<sup>TM</sup>



Products & Solutions  
**The SOLAFT Edge**

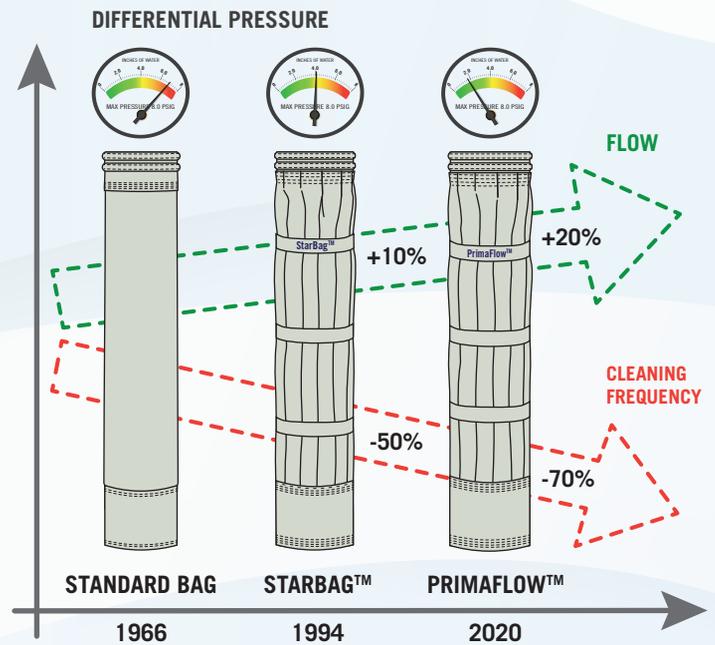
Filtration solutions you can rely on

# SOLAFT PrimaFlow™

SOLAFT's PrimaFlow™ (patent pending) is a revolutionary combination of proprietary filter bag, cage and customised filtration media, and is the next generation of Extended Surface Bags (ESB's).

The unique design of PrimaFlow™, improves the quality and quantity of gas inflow into the filter, and increases the internal core space, allowing the effective flow of gas along the entire length of the filter bag. This enables higher gas flow, lower differential pressure and lower emissions, resulting in significant improvements to technical and business operations.

Industries that benefit from SOLAFT PrimaFlow™ include, Aluminium, Coal-Fired Power Generation, Iron & Steel and Cement.



\*Improvement percentages when compared to standard bags

## Standard Bags

Since 1966 SOLAFT has been improving standard bag technology



## StarBags™

In 1994 SOLAFT developed StarBag™ pioneering extended surface filters



## PrimaFlow™

In 2020 SOLAFT developed PrimaFlow™ taking StarBag™ to the next level

## The Evolution of Filter Bag Technology

SOLAFT has always been at the forefront of filter bag development to meet increased production and regulatory emissions requirements. PrimaFlow™ represents the future of filter bag technology and highlights SOLAFT's continuous pursuit of excellence.

## Advantages of SOLAFT PrimaFlow™

- ↓ Lower Differential Pressure
- ↑ Improved Gas Flow
- ↓ Lower Emissions
- ↑ Higher Particulate Capture
- ↓ Reduced Pulse Frequency
- ↑ Increased Flue Gas Capture

## Benefits of SOLAFT PrimaFlow™

- Can be retrofitted without modification to existing cleaning systems and cell plates. This allows an increase in production load without the need for expensive capital upgrade where bag houses are undersized for demand
- Designed to ensure efficient operation with high filtration efficiency and throughput with lower emissions
- Extended bag life due to less pulsing
- Lower maintenance and operation costs due to less intervention and lower energy consumption

### Case Study 1 – Middle East

A Middle Eastern Aluminium smelter was not achieving its desired outcomes with standard ESB filters. Investigations by SOLAFT confirmed that there was a need to minimise the internal resistance within the filter to achieve the required performance.

SOLAFT trialled PrimaFlow™ in one of the cells, and compared it to a cell containing the incumbent ESB, and was able to achieve significant improvements.

PROCESS PARAMETER	PrimaFlow™ vs. Standard ESB filters
Hours to pre-coat	155% higher
DP after offline cleaning (Pa)	30% lower
Time to reach threshold	29% higher
Operational DP @ Max Flow	16% lower

The trial cells demonstrated that the PrimaFlow™ filters were easier to clean and had lower gas resistance, which yielded longer time to pre-coat and lower filter DP.

The GTC was converted to PrimaFlow™ and the results compared to a full GTC containing existing ESB filters.

PROCESS PARAMETER	PrimaFlow™ vs. Standard ESB filters
Reverse pulse cleaning interval	64% lower
Filter cell DP (Pa)	10% lower

When compared to the DP of conventional round filters, PrimaFlow™ was 40% lower. Both the trial cell and the full GTC conversion demonstrated that the lower gas-flow resistance characteristic of the PrimaFlow™ system yields measurable and significant advances in lower pressure drop and reduced cleaning frequency. Operational savings were achieved in induction fan electricity use, cleaning air compressed air use, and longer filter bag life with respect to reduced flexural fatigue of the filter media.



## Case Study 2 – Europe

A European Aluminium smelter retrofitted two GTCs with standard ESBs, with the aim of increasing the potline amperage whilst increasing gas flow from the pots and lowering filter DP. The project failed to meet the required targets, and the company approached SOLAFT who suggested PrimaFlow™ as the solution.

A trial was conducted, and compared one cell with PrimaFlow™ to another cell containing a competitor's ESB filters.

PROCESS PARAMETER	PrimaFlow™ vs. Standard competitor ESB filter
Filter DP (Pa)	32% lower
Filter cell gas flow (Nm <sup>3</sup> /s)	15% higher
Pulse pressure (bar)	50% lower
Pulse Frequency (p/hr/bag)	79% lower

This trial cell study has demonstrated that the low gas flow resistance of the PrimaFlow™ system allowed operation at a low pulse frequency level previously not achieved at the smelter. The reduction in pulse air pressure and pulse cleaning frequency yielded a potential for around 75% reduction in compressed air in the GTC operations.

The PrimaFlow™ system also achieved the highest ever, single cell gas flow at the aluminium smelter GTC, and overall PrimaFlow™ overachieved the company's best expectations.



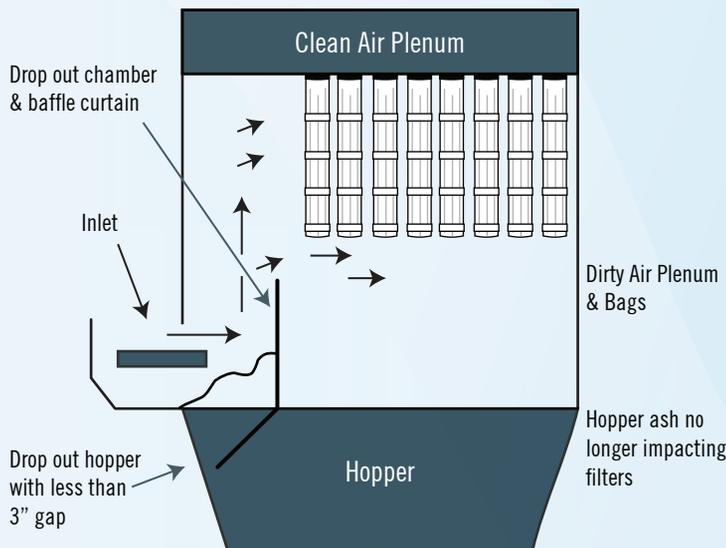
**PrimaFlow™ represents the best option in meeting regulatory emissions levels without compromising production.”**



### Case Study 3 – North America

A North American Energy Station was experiencing premature failure from abrasion, of their filter bags in line with the top of the baghouse inlet air baffle curtain. Abrasion was also occurring at the bottom of the bags from high velocity gas caused by high ash levels in the hopper. The abrasion problem affected 10-20% of the filter bags, with failures occurring within 2-3 weeks of installation. The method of dealing with the issue was to do frequent spot changes of failed bags to avoid breaches of emissions regulations.

The company investigated a number of options in an effort to mitigate the problems. A trial cell of PrimaFlow™ filters were installed, and after successful trialling, the baghouse was fully converted. PrimaFlow™ allowed a significant void volume under the filters to reduce gas velocity and promote ash pre-separation. It also removed the filters from the top edge of the inlet baffle curtain, and allowed the use of the existing overhead crane for filter installation and removal. Since start-up, the pulse pressure has been maintained at 50% of the conventional filters.



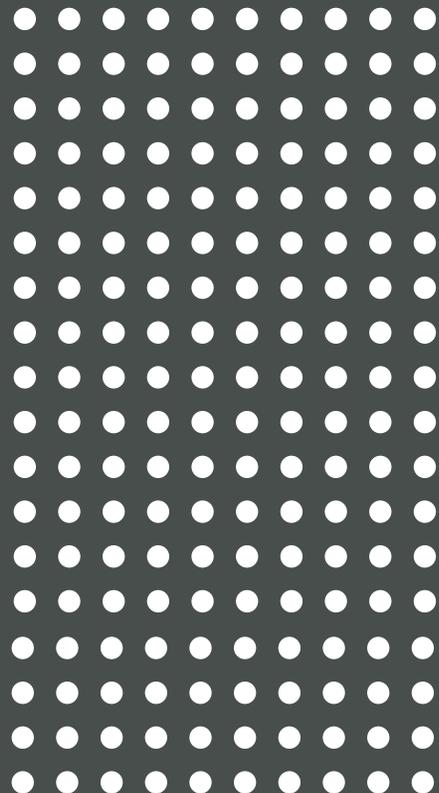
The differential pressure has remained at 30% lower than the conventional filters while the gas flow rate has been maintained equal to that of the conventional filters. There have been no unplanned corrective maintenance entries to remedy filter abrasion and emissions have been maintained below licensed limits.

The previous abrasion problem and 2-3 weekly corrective maintenance issues have been eliminated.



#### The Benefits of choosing SOLAFT

- Pioneer in the development of ESBs for large gas treatment centres and scrubbing systems
- Industry specialists that understand our customers' business
- Proven solutions for optimal filtration performance
- Technical support on hand when you need it



## About Us

SOLAFT Filtration Solutions is a global company, that has been supplying high performance customised filtration solutions and products to the heavy industrial sector around the world since 1966. Our trusted reputation is built on the vast and specialist expertise of our more than 250 staff across textile, filtration and heavy industrial operations.

SOLAFT Filtration Solutions is the world leader in extended surface filter technology, and devotes significant resources to research and development in this field. This commitment and drive towards innovation has seen the creation of PrimaFlow™, the next generation of Extended Surface Bags.

We understand that our customers' needs and expectations change over time due to internal and external operational and environmental requirements. Rather than resisting or ignoring this reality, SOLAFT is completely orientated around embracing this evolution by building best practice capability in:

- Understanding our customers' problems and objectives
- Designing and manufacturing customised filtration products to the highest quality standards
- Supporting the deployment and operation of these products on our customers' sites.

This approach ensures that our customers reliably and consistently achieve decreased air-to-cloth ratio, improved particulate capture, lower emissions, reduced costs and extended bag life due to reduced pulsing.

For solutions, advice or just more information please contact us.

