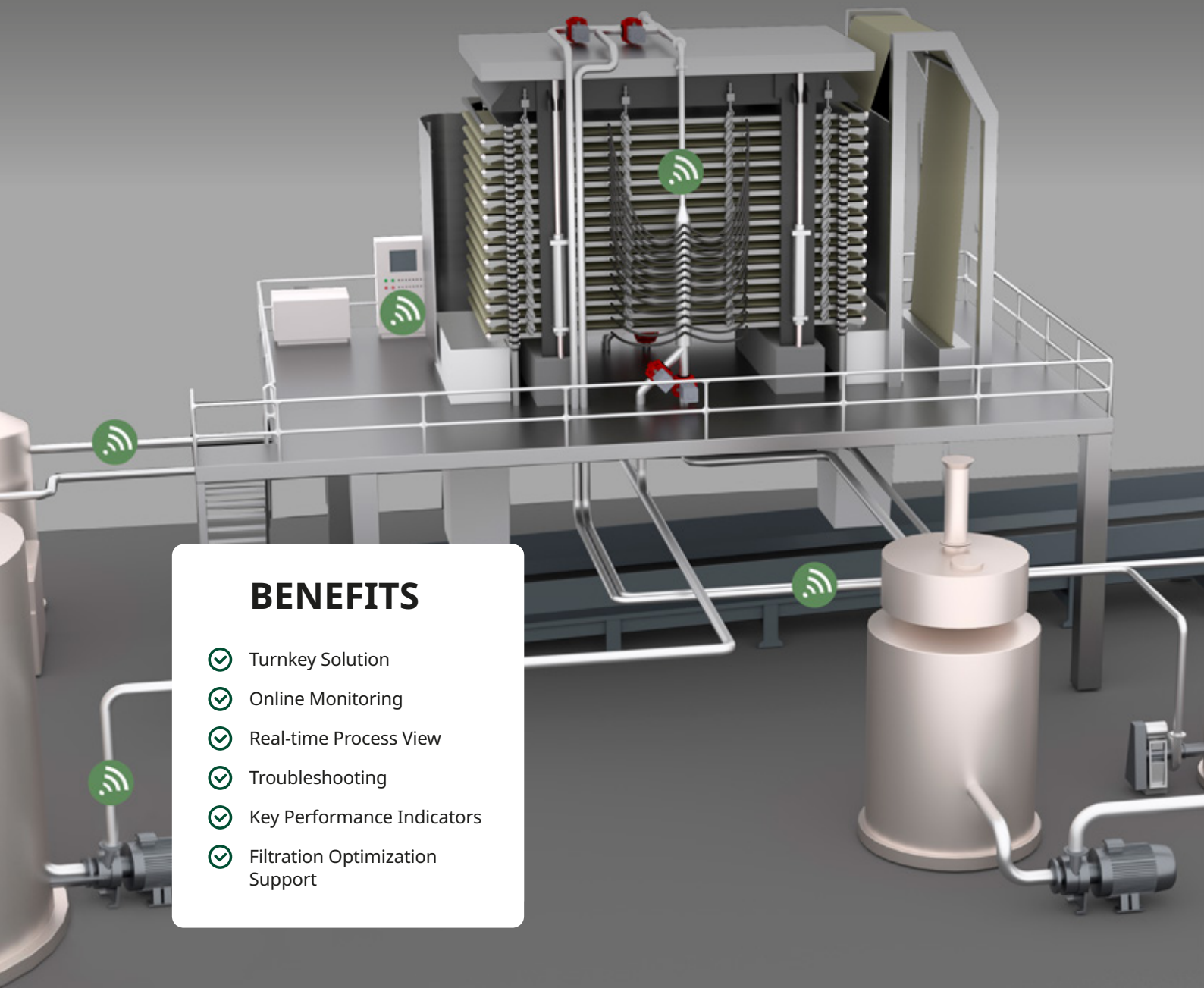


# Smart Filtration



## BENEFITS

- ✓ Turnkey Solution
- ✓ Online Monitoring
- ✓ Real-time Process View
- ✓ Troubleshooting
- ✓ Key Performance Indicators
- ✓ Filtration Optimization Support

# Roxia Smart Filtration

Roxia Smart Filtration is a turnkey solution. It enables remote, real-time insight into the filtration process and helps to troubleshoot and significantly optimize production. Smart Filtration utilizes existing control system and sensors and connects the filters to the Roxia Malibu™ online portal.

## Roxia Smart Filtration for All Filters

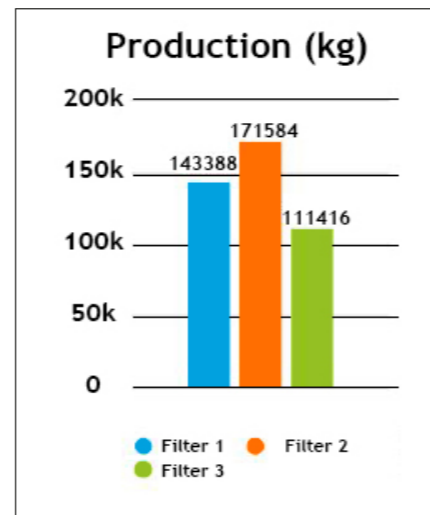
Roxia Smart Filtration can be installed on any filter and integrated with any other process equipment and control systems (DCS). Monitoring the filtration process online through Roxia Malibu™ portal is easy and user-friendly. Access is possible when- and wherever with any computer, smart phone or other handheld device connected to the internet. Malibu also automatically generates user defined reports which are easy to understand. Data analysis provided by Smart Filtration can be used for comparing filter's productivity, quality changes, energy consumption, production output, to determine reasons for its waiting time, alarms and more.

### Production Volume and Process Results Information

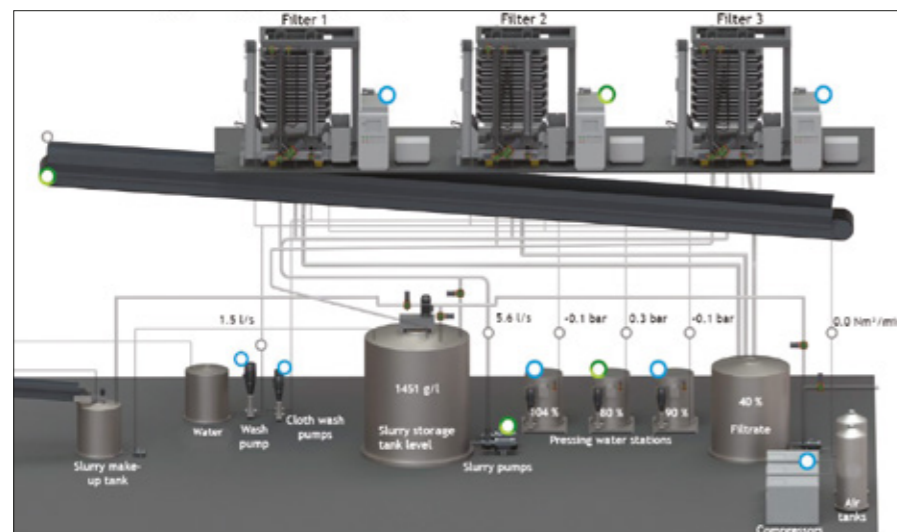
- × Fast analysis of production volume and process results
- × Performance comparison between multiple filters
- × Utilities comparison and OPEX reporting

### Production Volume and Process Results Information

- × Generates utilization timeline
- × Extracts most common alarms and reasons for downtime
- × Reports of chosen time periods and measurements



Clear comparison of production between the filters is one of the most useful KPI's for everyday use.



Live and detailed online view of the filter process plant shown on Roxia Malibu™ portal.

## BENEFITS

- ✔ Improved performance by comprehensive process understanding
- ✔ Improved performance by comprehensive process understanding
- ✔ Quick troubleshooting
- ✔ Failure analysis

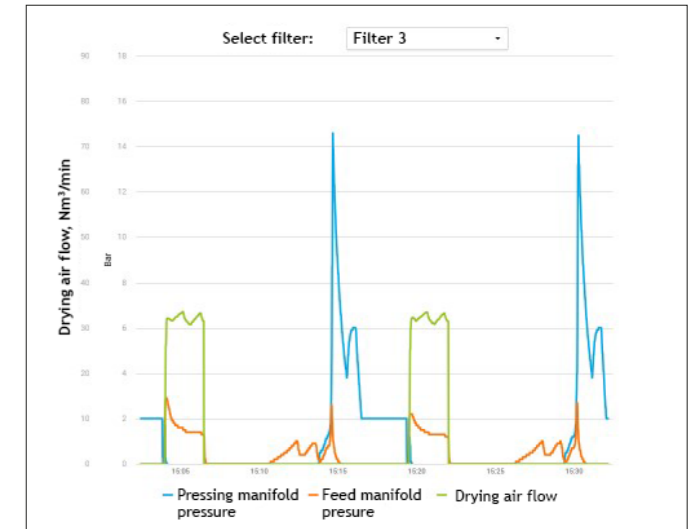
## Optimize Your Filtration Process

Roxia Smart Filtration includes complete evaluation of your filtration process. Roxia professionals will help you optimize the entire filtration process to reach targeted cake moisture and maximize filtering capacity.

Different alarm limits can be set to automatically notify you via email about changes in the process. Optionally, additional sensors and equipment can be added for more comprehensive analytics, observations of spare part replacement intervals and assistance with auxiliary synchronizing. The tool can even detect filtration problems originating from upstream and downstream of the filter.

## How Can You Benefit From Roxia Filtration Analysis

- × Discover problems in drying by following abnormalities in air pressure curves. Efficiency in drying phase can be estimated from changes in pressure. Even possible cake cracking can be detected.
- × Detect cloth and membrane damages at early stage by analyzing water volume changes.
- × Ensure product quality by analyzing cake moisture or filtrate opacity and conductivity.
- × Discover indications of cloth damage and clogged grids and put a stop to decreased production, raised moisture and bending filter plates.
- × Determine the reasons for waiting times. Get a real-time insight into the process: how long are the waiting times, what are the filters waiting for (slurry, air, conveyor). Discover the real reasons for delays and instantly improve the filtration process.



Roxia troubleshooting tools and filtration analysis detect abnormalities in the process and automatically send alarms via email.

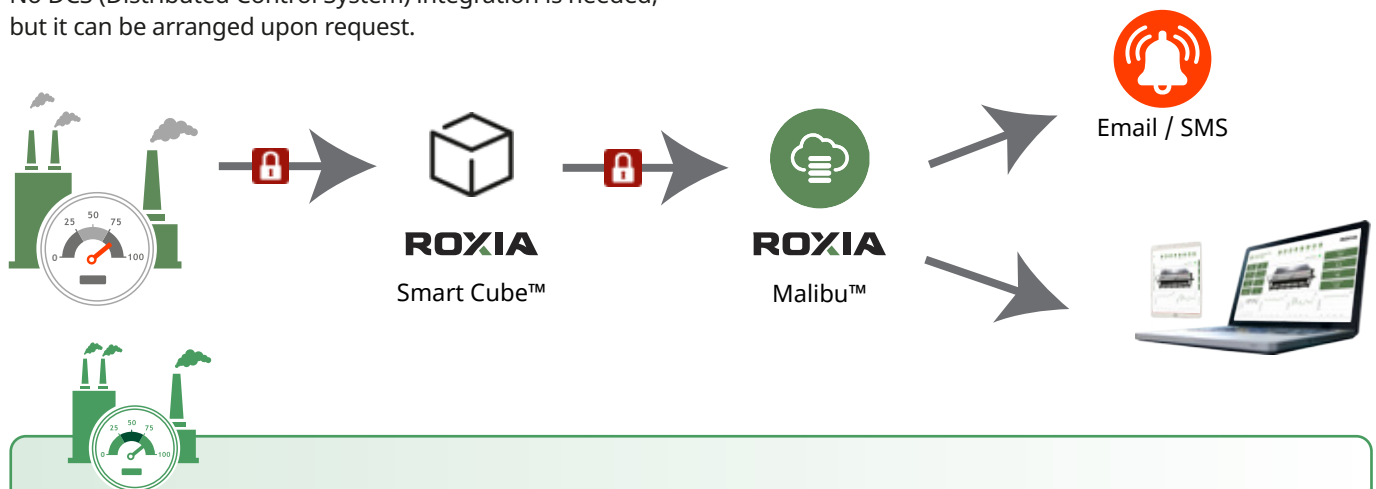


Key Performance Indicators - Tailored view according to user needs

## Full Data Protection & No DCS Integration Needed

Smart Filtration is secured by SSL/TLS encryption – the same technology used in internet banking. Hardware based Virtual Private Network (VPN) and physical firewall isolate filter PLC from public network. Roxia is using its own internet connection to send the data to the cloud. Roxia Smart Cube™ is configured as a read-only system, so Smart Filtration tool cannot affect the filtration process in any way. No DCS (Distributed Control System) integration is needed, but it can be arranged upon request.

*“ Optimize your filtration process, improve process capacity and boost production volume. ”*



### Our customer: Terrafame Ltd., Finland

**Application:** Zinc sulphide dewatering

Like many other filtration plants, Terrafame’s filter operators faced a common problem: data about tower press filters’ performance was only accessible on the screens mounted on individual filters.

With Roxia Smart Filtration Digital Service, all data is now represented in a user-friendly way, clear and easy to understand. The 3D environment model replicates how the plant really looks like, so it is easy to navigate and see what is going on in different parts of the process. The Smart Filtration Digital Service even monitors infeed (slurry) characteristics and shows performance of the auxiliaries like slurry pumps, tanks and compressed air which are crucial parts in filter’s cycle.

## Performance – driven by people

Roxia delivers high-tech dewatering, industrial automation and environmental technologies. Specializing in mining, minerals, metallurgy, chemical, food and pharmaceutical industries, our team generates best performing solutions for each specific need.

We offer our support from Australia, Chile, China, Finland, Germany, Peru, Russia, South Africa, Sweden and the United States.

