

**PULPING**



**Pulp 4.0**

Optimize quality and  
reduce cost with Industry  
4.0 tools across the fiberline



## Pulp 4.0

Optimizing fiberline productivity and profitability is the key challenge for pulp mills.

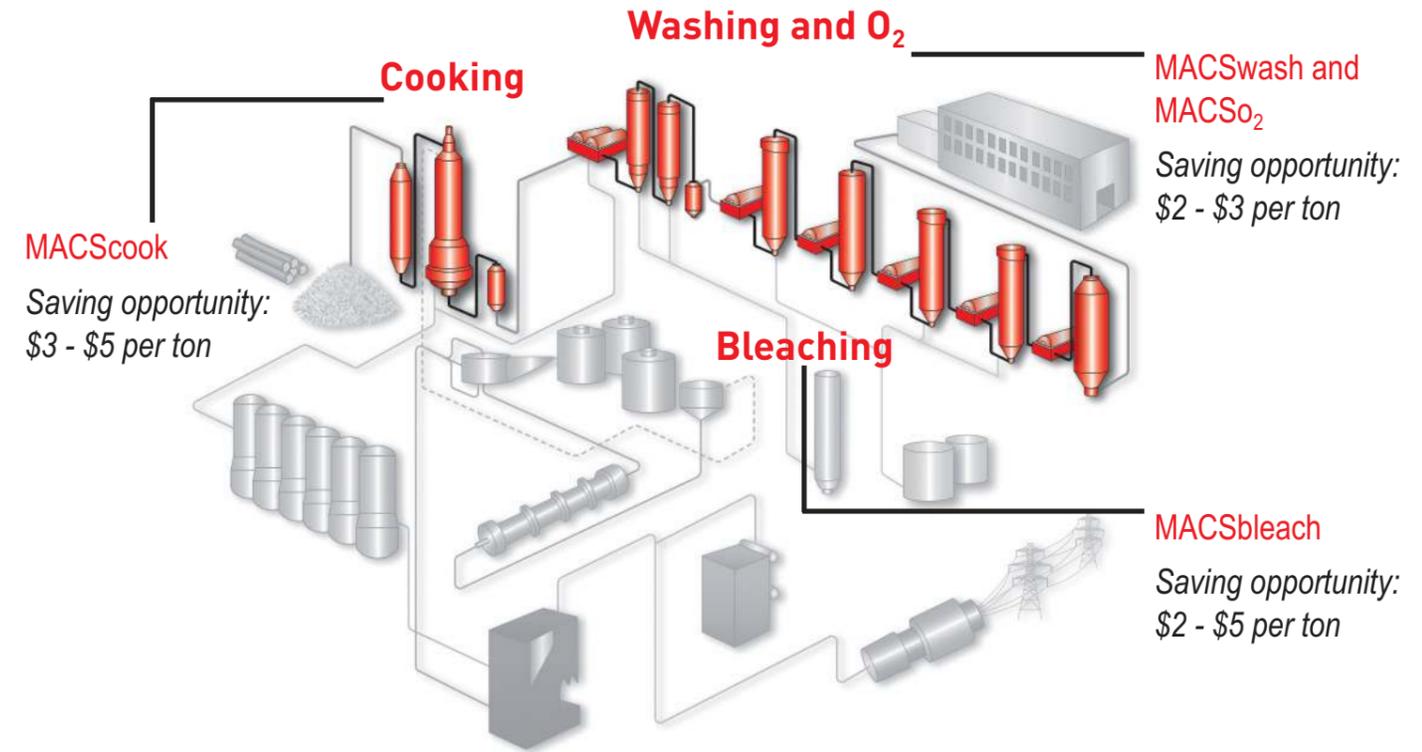
There are three main requirements to improve pulp mill KPIs:

- Accurate, reliable and fast process measurements
- Visualization of the process and relevant information
- Implementation of advanced process controls to improve performance to target

## BTG makes it easy

BTG introduces the next step of the improvement journey. With Pulp 4.0, the overall fiberline is optimized instead of individual processes.

Process measurements combined with advanced process controls and supported by BTG expertise ensure the best performance from your fiberline.



### Process measurement

Critical specialty measurements:

- Consistency
- Residual lignin (Kappa)
- Brightness
- Residual chemicals
- pH

### Advanced Process controls

MACS optimizes the process to reduce variability, operating costs and productivity and is sustained with remote monitoring and consulting

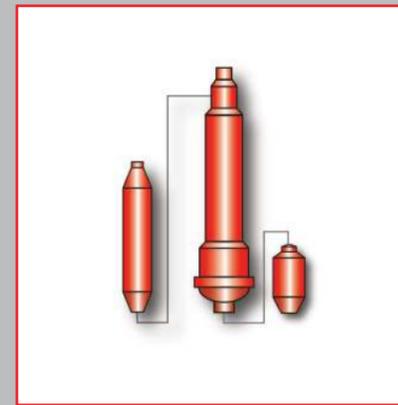
### Process expertise

BTG experts work with our customers to maximize knowledge and benefits

### MACScook

Improve Kappa stability (10%-50%) and yield optimization

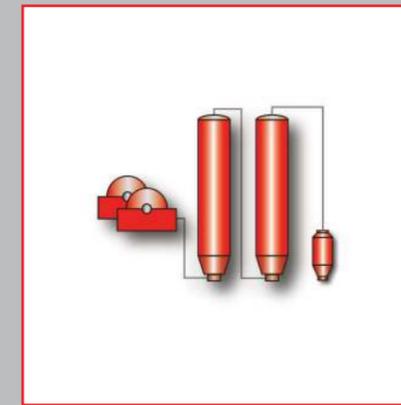
MACScook is the combination of our online, high frequency Single Point Kappa measurement (SPK) together with advanced process controls and expertise to reduce variability and optimize yield.



### MACSwash and MACSO2

Solids and carryover optimization

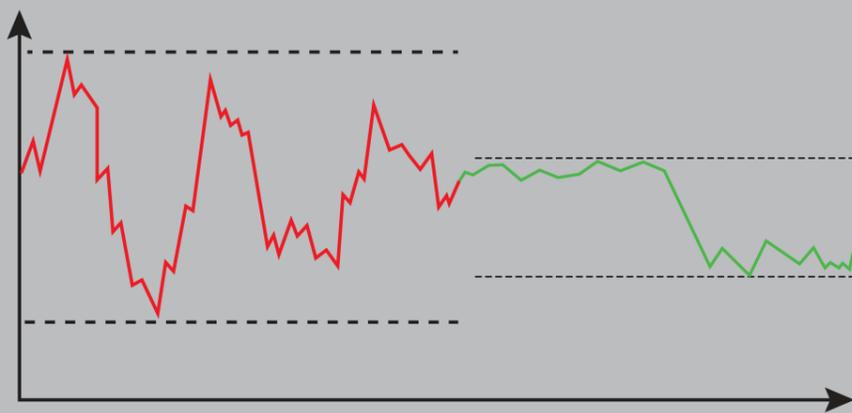
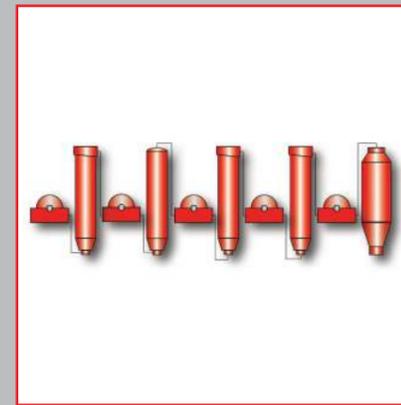
MACSwash enhances the washing process for carryover and black liquor solids, utilizing the dissolved lignin transmitter. MACSO2 optimizes the oxygen delignification utilizing a SPK to measure both the incoming and outgoing kappa and properly managing the pH target for oxygen delignification.



### MACSbleach

Reduce bleaching chemicals and stabilizes pulp quality variability

MACSbleach controls the overall bleaching process to minimize chemical usage, manage distribution and stabilize brightness utilizing the Bleach Load Transmitter (BLT), Brightness Transmitter (BT) and pH management.



### Pulp 4.0 Benefit

Pulp 4.0 improves pulp quality and stability, while decreasing process variability resulting in a reduced production cost.

Economic benefit can reach \$2 to \$10 per ton.



## About us

The BTG Group is a multinational provider of integrated, highly specialized process solutions for the global pulp and paper industry. Every day our people help customers achieve sustainable gains in business performance through our application know-how and industry-leading technologies. This includes world-leading rods and beds for film-metering size presses; high-performance ceramic and cermet coating blades; high-performance tissue creping doctors and doctor holders, specialty doctor blades and pulp and paper process control sensors and laboratory instruments. All of these technologies are supported with expert services and application support.

Our advanced integration philosophy combines high-quality instrumentation, detailed and versatile data analytics and our unique, expert applications experience to provide BTG customers with operational advantages that realise new gains in productivity and profitability.

Headquartered in Eclépens, Switzerland, BTG employs about 600 professionals across the world and operates four manufacturing sites, three research centers and several regional application centers. The BTG Group is an operating unit of Voith Paper ([www.voith.com](http://www.voith.com)).



## Contact

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