

# Instrumentation

for Pulp & Paper Applications

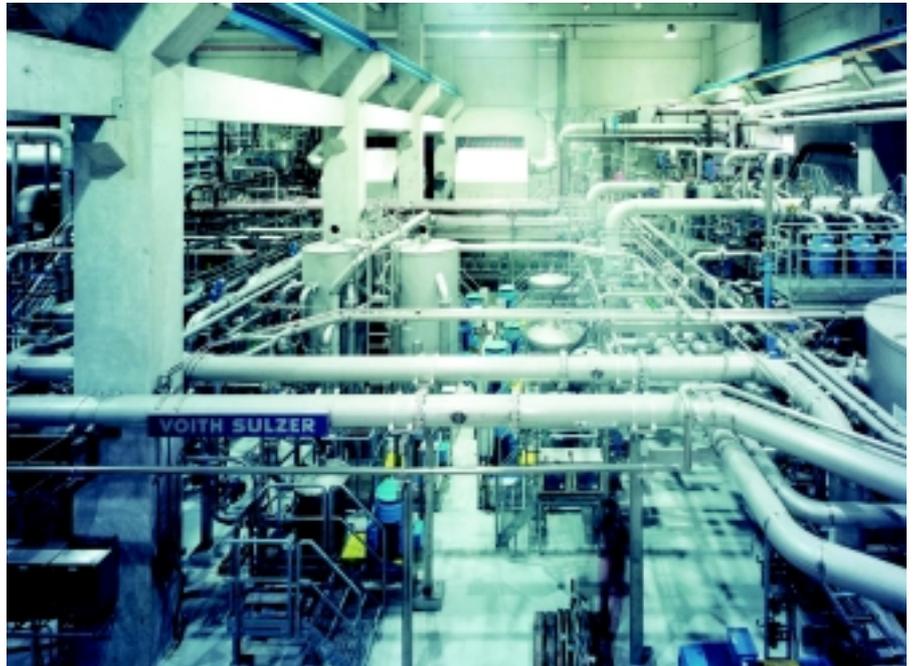
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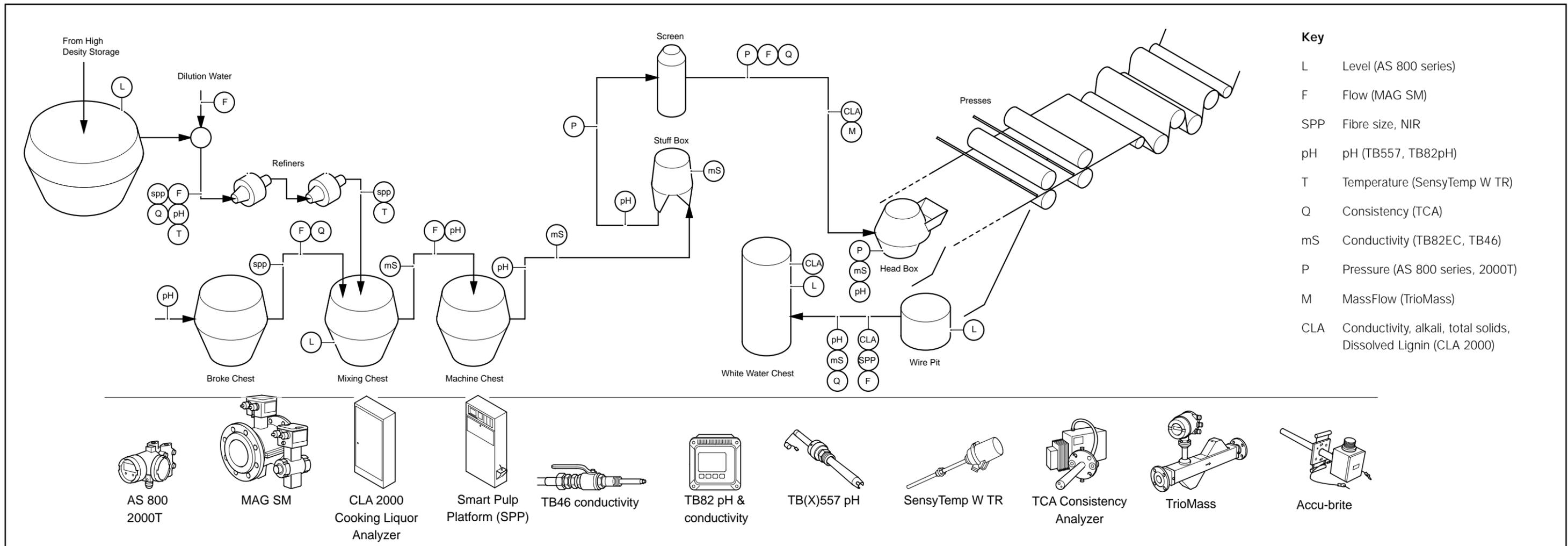
Different grades of paper require their own particular properties such as opacity, strength, colour, and feel. This requires the incoming pulp to be treated in mechanical refiners and chemicals added to impart the desired properties. This treatment of pulp is known as stock preparation.

The Wet End is the first part of the Paper Machine where the stock is screened and applied to the web via the headbox. It includes the wire section and ends at the press section before going into the dryer.

Dedicated, robust instrumentation and advanced control are required to achieve this efficiently.

## Stock Preparation/ Wet End





Parameter	Why measure this parameter ?	Why use ABB Instrumentation ?	Which ABB Product ?
Flow	Optimized flow control of chemicals, additives and pulp minimizes variation in product brightness. Flow control of steam and gases.	AC-excited flowmeters provide inherent noise-free signal ensures stable process control, thereby improving plant output and efficiency. Rugged design reduces maintenance and extends service life.	MAG SM Electromagnetic Flowmeter TrioMass Coriolis Mass Flowmeter
SPP/Q/Br	NIR, Consistency and fiber size distribution measurements produce a predictive model of paper qualities e.g. strength. Brightness and colour measurements are used to optimize chemical additions in the wet end. Fiber consistency measurement provides a basis for freeness control and energy optimisation, and correlates to the drainage rate of the paper machine screen.	Optical measurements – give good correlation to laboratory measurements without the cost. High frequency sampling – gives a more representative view of the process. Correlation of brightness and color measurements with 'Tappi brightness standard' and 'Hunter Lab color values' carries out on-line	SPP Smart Pulp Platform ACCU-BRITE sensors for brightness color and residuals TCA Consistency Analyzer
pH	Correct pH levels in the white water system optimizes the use of chemical dosage and therefore reduces costs. Retention of fillers is very sensitive to pH (Zeta Potential). Increased pH produces more flexible fibres to aid effective refining. Optimum pH reduces machine corrosion and contamination, and optimizes fiber strength and retention.	Flat surface, solid-state sensors ensure maximum process uptime. Hot-Tap retractors provide flexible installation with minimum investment. SMART-key instruments guide the user without the need for manuals.	TB(X)551 pH sensor TB(X)557 Hot-Tap pH sensor TB82PH pH/ORP Transmitter
Pressure	Correct pressure values maintained for optimum feed from headbox. Ensures there is product between the refiner blades thereby maintaining plant safety.	Constant accuracy maintained regardless of temperature fluctuations thus improving plant performance. Multi-process connections and special diaphragm design reduces maintenance costs and extends service life.	ASD 800 Pressure Transmitter 2020 TG Pressure Transmitter
Level	Low level monitoring ensures the pumps are not run dry and plant operation is maintained. High level monitoring prevents overflow, maintains plant safety and ensures adherence to environmental regulations. Level monitoring ensures optimum production rate.	Process diaphragms with special design avoid critical deposits and meet the high temperature requirements.	ASK 800 Flange-mounted Level Transmitter 2010 TD Flange-mounted Level Transmitter
Conductivity	Aids maintenance of salt balance in the mill system. High total of dissolved solids interferes with bonding and retention. Detects contamination of the mill condensate system.	Self-checking enables just-in-time maintenance. Coating immunity promotes maximum process uptime. Flat face allows undisturbed measurement in pulp stock to 12% consistency. Extremely wide rangeability with one sensor.	TB46 Conductivity Sensor TB82EC Conductivity Transmitter
Differential Pressure	Monitoring the performance of filter and filter media promotes long-term efficient filtration.	Multi-sensor technology saves on instrumentation and installation costs.	ASK 800 Differential Pressure Transmitter 2010 TD Differential Pressure Transmitter
Temperature	Temperature measurement ensures correct operation of the refiner.	Designed for process optimization. High reliability, repeatable accuracy and long term stability reduce service costs to a minimum	SensyTemp WTR with head-mounted transmitter

ABB Instrumentation provides:

- ▶ Application Know-how
- ▶ Full-scope Supply
- ▶ Innovative Technology
- ▶ Rugged Devices
- ▶ Global Service Support



The Company's policy is one of continuous product improvement and the right is reserved to modify the information contained herein without notice.

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