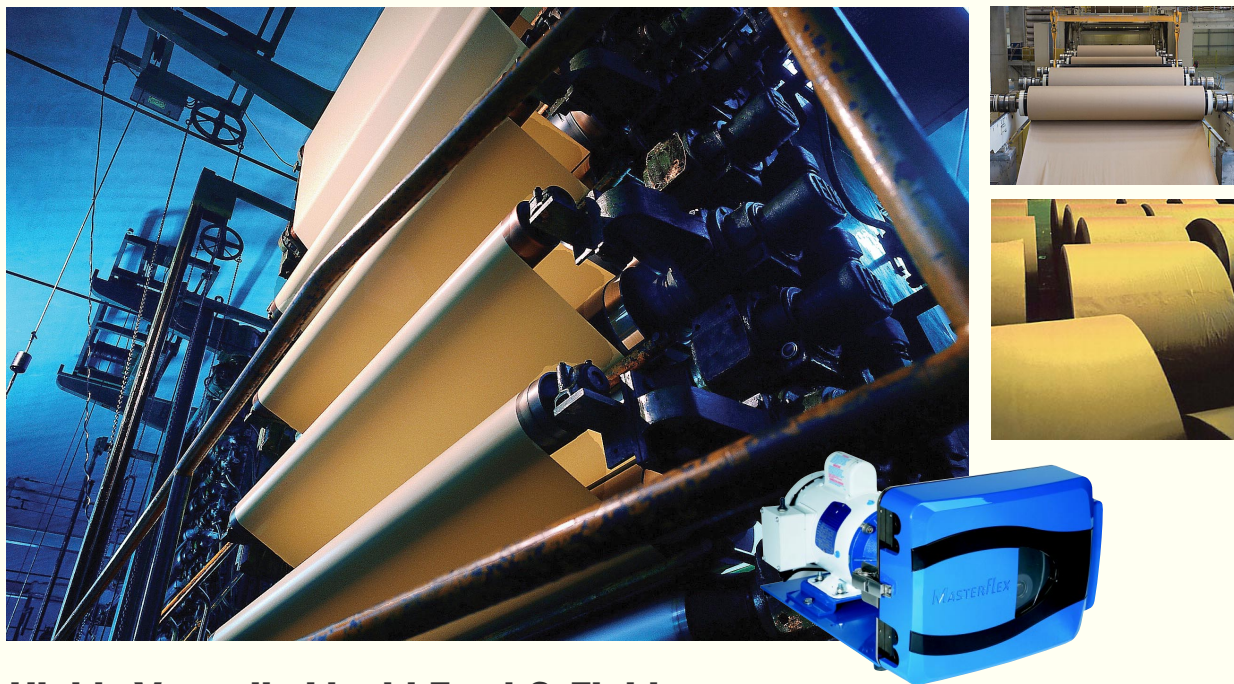


FOCUS

PULP & PAPER



Highly Versatile Liquid Feed & Fluid Handling Solutions For Pulp & Paper Operations

Challenge:

Pulp & paper operations continuously handle abrasive slurries and highly aggressive chemicals – and this creates huge demands on pumping systems. The recovery of back liquor soap, for example, contains particulate matter, is abrasive, hot, and entrained gases can cause seal failure in certain pump designs. Lime slurries used to produce bleach liquor can easily settle out and clog valves. In addition, maintaining precise, consistent, repeatable flow rates often present major challenges for the metering of dyes, sizing agents, retention aids, and other chemicals.

Solution:

Thermo Scientific Masterflex® peristaltic pumps are impervious to highly abrasive fluids and gentle on shear-sensitive materials. Handling tough, viscous slurries are never a problem due to the pump's high suction lift capabilities. Plus, there are no glands, valves, or seals to become clogged or wear out. Masterflex pumps can also run dry. And, unlike many pump designs used in pulp & paper processes, Masterflex pumps maintain a precise, constant flow rate with excellent repeatability – providing volumetric accuracies of $\pm 0.5\%$ of liquid volume, or better.

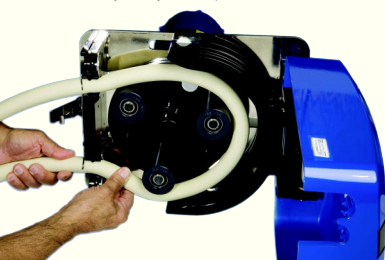
Benefits:

Masterflex pumps provide pulp and paper operations with extremely versatile liquid chemical feed and fluid handling solutions with the highest reliability, volumetric accuracy, and long-term operation – plus simple, low maintenance. Masterflex peristaltic pump systems are ideal for handling virtually any chemical, slurry, and additive at pulp and paper operations. The only material the fluid touches is the inside of the tubing, and since no other parts of the pump ever contact the solution, only the tubing ever needs to be cleaned or changed – a very quick and simple procedure.

HIGHLY VERSATIVE LIQUID FEED & FLUID HANDLING SOLUTIONS

Thermo Scientific Masterflex® peristaltic pumps are the ideal solution for efficiently carrying out the demanding bulk transfer and chemical metering applications of pulp & paper manufacturers. Aggressive materials — such as phosphoric acid, soda ash and sodium nitrate solution, or Kaolin and clays containing latex and abrasive silica — can lead to defective valves and premature pump wear on other pump types. With Masterflex pumps, however, these materials remain inside the pump's hose or tubing at all times and cannot contaminate and damage the pump or meter. The pump's non-intrusive design provides a straight flow path with no dead flow areas for slurry to agglomerate, harden, and contaminate the process. Flow rates are accurate up to $\pm 0.5\%$.

Masterflex Pumps are innovative, cost-effective peristaltic pumping systems which exhibit low shear force, so it's



The Masterflex B/T RapidLoad® pump head makes tubing changes quick and simple — occlusion is set when the pump head door is closed.

gentle on polymers and shear-sensitive slurries, and its variable speed operation allows for precise control of flow or pressure over a wide operating range to maintain process integrity.

For metering process sensitive materials, such as dyes, optical brighten-

ing agents, and retention aids, Masterflex pumps provide high accuracy, repeatability, and reliability, especially when compared to diaphragm metering pumps, which often cause excessive downtime for cleaning, stripping and repair. With Masterflex Pumps, a well-balanced range of capacities and flexibility combines with excellent repeatability and optimal chemical resistance to provide for precision, high reliability and long-term operation for handling virtually all chemical products for pulp & paper production.

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With adjustable 650:1 resolution, bi-directional flow and self-priming capabilities, user-friendly Masterflex pumps provide precise, easy bulk fluid transfer and dispense.

**HANDLES ABRASIVES, SHEAR SENSITIVE MATERIALS**

The Masterflex pump: a completely closed system for efficient fluid transfer and dispense, reduced downtime

With adjustable 650:1 resolution, bidirectional flow and self-priming capabilities, **Masterflex® pumps provide for smooth, seamless flow .**

Superior performance in viscous and abrasive fluid handling applications such as black liquor soap and lime slurries.

Gentle peristaltic method of pumping prevents surging and **will not damage Latex or shear-sensitive polymers.**

Masterflex pumps are **extremely flexible** with slurry viscosities.

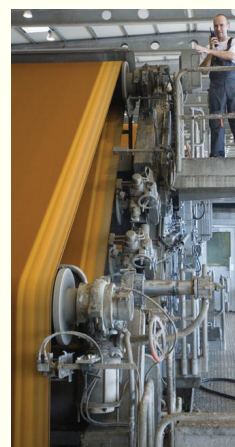
Masterflex pumps produce very little heat, compared to gear pumps, protecting the integrity of temperature-sensitive dyes and chemical additions.

Peristaltic design means **no valves, glands or seals** to clean or wear out.

Requires very little maintenance to keep in peak operating condition.

Pumps have **an accuracy of ± 0.5 or better** and flow rates from a few fluid ounces to multiple gallons per minute.

Maintenance-free brushless motor drive (rated for continuous duty) and roller and ball bearing pumphead construction produce a robust, powerful pump **ideal for long-term operation.**



Self-priming for instant startup. And **high suction lift** provides for operating flexibility. The pump will also operate dry without damage!

Pulp & Paper Applications

Dyes • Retention Aids • Brightening Agents • Alum
• Sizing Agents

- Pulp Chemicals • Latex • Soda Ash • Phosphoric Acid • Soda Ash
- Sodium Nitrate Solution • Alkalis
- Acids • Polymer • Composil Recycle • Defoaming Agents
- Titanium Dioxide • Glues
- Clay Solutions • Bleach Liquor
- Lime Slurry • Black Liquor Soap