



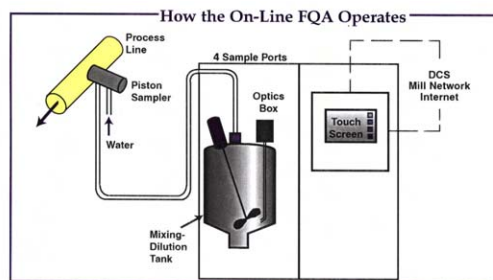
OpTest Equipment Inc.

## On-line HiRes FQA

*The On-line HiRes Fiber Quality Analyzer rapidly, accurately and automatically determines the quality of cellulose fibers and analyses for vessel elements and shives. This includes length, width and shape. A patented flow cell and diagnostic routines maximize system precision and stability for problem-free performance.*



Pulp is representatively sampled from a pipe-line and sent to the FQA where it is diluted and passed through a patented flow cell where three layers of water are brought together to form a laminar flow, with the fibers located in the thin middle layer. The flow cell orients the fibers without distorting their shape. (US Patent No. 5,311,290) When the test is completed high pressure rinsing is performed to ensure that the equipment is clean before executing the next test.



Typical installation

### ADVANTAGES:

- Rapid & accurate measurement of length, width, curl & kink on fibers up to 10 mm
- Measures Shive and Vessel Elements
- A single camera measures all fiber values simultaneously
- Exceeds the Standard specifications of Tappi T271, Paptac B.4, & ISO 16065-1
- On-line and lab versions give the same results
- Pulp blending



- Circular polarized light provides the most accurate measurement of fiber length and shape
- More precise than non-polarized light methods
- The patented cytometric flow cell stays clean and prevents plugging
- Characterizes pulps with contaminants such as ink, fillers, extractives and pitch
- Remote support from OpTest via the Internet
- Communicates with the DCS, Mill Network/LAN
- Industrial NEMA 4X enclosure

The On-Line HiRes Fiber Quality Analyzer (FQA) helps to improve pulp quality by measuring:

- % Fines (numeric)
- Fiber Length ( $L_N$ ,  $L_W$ ,  $L_{WW}$ )
- Lengths up to 10mm at  $\pm 0.01$ mm
- Fiber Curl<sup>1</sup> and Kink<sup>2</sup>
- Fiber Width (sensitivity < 0.1  $\mu$ m/test)
- Vessel Element Analysis
- Shive Analysis
- Hwd/Swd Ratio

The On-Line HiRes FQA reports the means and distributions of the above measurements.

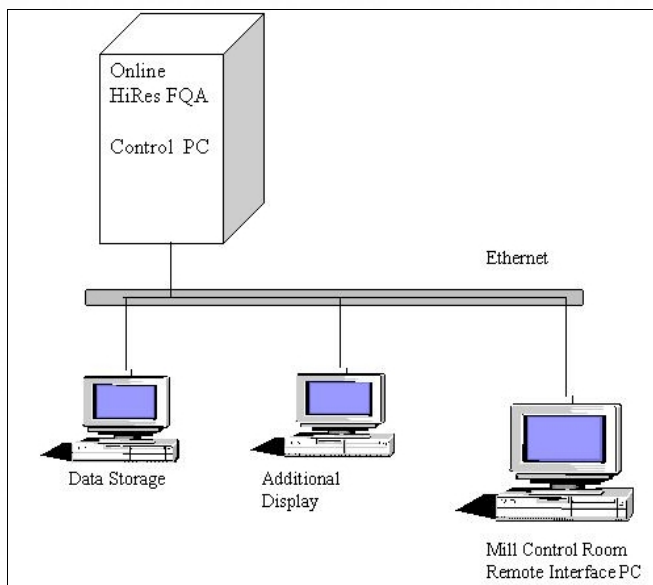
### ON-LINE HIRES FQA CAPABILITIES

The On-Line HiRes FQA has the capability to sample:

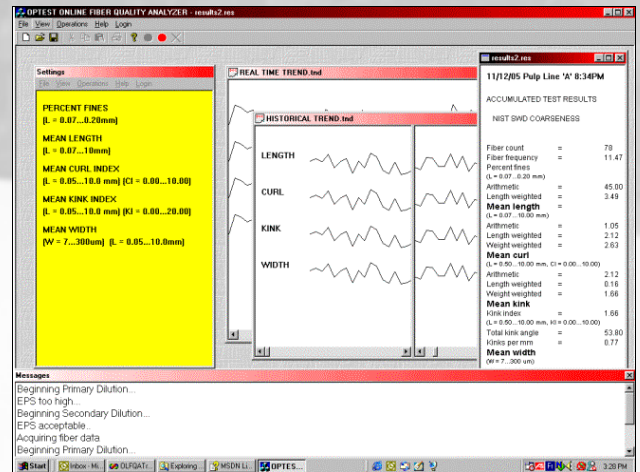
- From up to 4 different locations
- Distances of up to 35 m (100 ft.)
- Pulp consistencies up to 12%.
- High kappa and high shive content pulps

### EASILY INTEGRATED AND USER FRIENDLY

Results from each test are identified by and stored either on "The Display PC" or on the mill network. Users can access individual test reports. The On-line HiRes FQA user interface provides a range of easy access options for the display of real time or historic data in the form of trend plots or individual test results. Real time trend plots track fibre properties over a user defined time frame, providing data when it is needed most. Historic trend plots allow the user to examine changes to fibre properties over different time frames. This can be used for production comparisons, trials, product development, process tuning, or optimization.



Typical connection to interface PC and data storage



Remote PC user display with trend analysis

### DIMENSIONS [m]

	Height	Front	Side
● On-line FQA	1.7 (68")	1.2 (48")	0.7 (26")
● Crate	2.0 (80")	1.6 (60")	1.1 (40")

### WEIGHT

● On-line FQA	230 kg (500 lbs)
● On-line FQA in Crate	340 kg (750 lbs)

### PROCESS CONDITIONS

- Max. Ambient Temperature: 40 °C (105 °F)
- Hose down rated NEMA 4.

### CONNECTIONS

- Power: 120V/240V, 1KW grounded stable within 3%
- Water Line:
  - Connection: 3/4" OD compression fitting
  - Quality: Potable
  - Pressure Range: 340-612 kPa (50-90 psig)
- Drain: Connection: 2" SS hose barb  
Max. Capacity: 100 l/min
- Pulp Sample Lines:
  - Number of Connections: Up to 4
  - Connections: 1" SS hose barb
  - Max. Length: 100 ft
- Air Lines:
  - Connections: 1/4" quick connect
  - Tubing: 1/4" OD poly tubing
  - Quality: Instrument air
  - Pressure: 680 kPa (100 PSI)

### ACKNOWLEDGEMENTS

The FQA was jointly developed by PAPERICAN, the University of British Columbia, and OpTest.



**OpTest Equipment Inc.**

900 Tupper St.  
Hawkesbury, ON Canada  
K6A 3S3

P: 613-632-5169

F: 613-632-3744

E-mail: sales@optest.com

<sup>1</sup>Curl Index =  $(L/l) - 1$ ; where L = contour length and l = projected length

<sup>2</sup>Kink Index =  $[2N_{(21-45)} + 3N_{(46-90)} + 4N_{(91-180)}] / L_{TOTAL}$ ; where N = # of kinks