OPTIMATION
Corporate Office: 50 High Tech Drive Rush, NY 14543
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Roller Performance Workshop

Optimation Media Conveyance Facility (MCF)
1600 Lexington Ave., Rochester NY 14606

Abstract

The most fundamental element of any web handling or converting process is the roller. Whether driven or idling, each roller in a process has the opportunity to slip and scratch the web, leading to loss of control (either tension control or web guiding) or scratching and debris generation.

This workshop will present the process knowledge needed to design and maintain rollers to run in traction, without slip, and scratch-free. Good roller design and maintenance will also help your process by minimizing roller contributions to machine or crossweb tension variations.

Unlike any other option in web handling education, the Optimation MCF series of web handling 'workshops' are one-of-a-kind training that combines classroom seminars with on-machine demonstrations.

Who Will Benefit from this Workshop?

This two day workshop is directed towards technical employees of any level with a need to understand the fundamentals of roller design and performance. Though the seminar will include some engineering theory and equations, the workshop's goal is to show how theory and experiment lead to practical solutions to common problems.

Seminar Outline

The workshop will aim for a 50-50 split between seminar and lab demonstration time. Seminar topics will include all the background needed to understand the lab demonstrations and more, including:

- Roller conveyance introduction; purpose of roller conveyance
- Physical properties important to roller conveyance
- Right angle rule of roller tracking
- Calculating roller tension losses from drag and inertia
- Traction measuring and prediction from roller and web properties
- Roller alignment methods, requirements, and specifications

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Lab Demonstrations

Lab #1 – Measuring Roller Drag from Bearing and Inertia

Learn the simple techniques of roller spin up and spin down testing and how they can be used to calculate roller inertia, bearing drag and rubber covering hysteresis at process speeds and tensions.

Lab #2 – Measuring Web-to-Roller Traction vs. Speed/Tension Conditions

See how the available web-roller traction decreases at higher speeds and lower tensions. Measure the effect on air lubrication and web-roller traction loss of surface roughness (either web or roller), roller grooving and web porosity. See how roller misalignment or diameter variations affect traction loss.

Lab #3 – Measuring Roller Alignment

Learn the simple and advance methods to measure and maintain roller alignment. Demonstration will include machinist levels, dial indicators, tramming sticks, Pi tapes and optical alignment techniques.

Lab #4 – Measuring Roller Deflection in Idler, Nipping, and Bowed Rollers

Learn the simple methods to measure roller deflection. Demonstration will include using a machinist levels, dial indicators and tramming sticks techniques.

Workshop Instructor

The workshop will be presented by Dr. Kevin A. Cole of Optimation Technology, Inc.

- Dr. Cole, a Senior Web Handling Development Engineer with Optimation Technology Incorporated, has a PhD in Mechanical Engineering from the University of Rochester. Kevin developed his expertise in web handling over his 20+ years working for Eastman Kodak Company and led their internal training program on winding and conveyance process fundamentals. He was also an active participant in the OSU WHRC, including chairing their Industrial Advisory Board for four years. Kevin has a rare combination of excellent problem solving and modeling skills, allowing him to comfortably move between production and developmental work.

About the Workshop Facility

The Optimation Media Conveyance Facility (MCF) is a 5000 sq. ft. space featuring experimental, analytical, and limited production web handling capabilities for narrow and wide applications. The MCF, acquired in 2008 by OTI, has a 35-year history serving as an internal resource for Eastman Kodak Company, but is now available for commercial use, including serving as host for this workshop.

Workshop Fees:

	Registration Fees	Early Registration Discount (3 weeks advance)
First registration:	$1449	$1379
Second registration:	$1379	$1313
Third registration:	$1313	$1249

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Bonus: Test Your Web and Roller

If you are interested in testing your webs or rollers, there is a limited space to do so during the workshop; however, contact us directly if you are interested in customized and confidential testing on a contract basis.

Bonus: 'Test *Your Web*' and 'Test *Your Roller*' During or After the Workshop

We offer the ultimate hands-on experience – testing your webs or rollers in any of the lab demonstrations.

Some '*test your web*' work can be accommodated during the two day workshop, but for more thorough or confidential testing, additional trials can be arranged for another time (earlier in the workshop week or at a later date). Participants interested in the 'test your web' option should see the table below for more information on input web, roll, and core specifications.

In addition to testing your web on our standard and special rollers (please request information of what rollers we have), we also offer the option to '*test your roller*' if you wish to understand traction, wrinkling, and spreading in a simulation that will best represents your process.

Customer-Supplied Roll/Web/Roller Requirements

Material	plastic/paper/foil
Roll width	26 inch minimum, 56 inch maximum
Maximum roll diameter	26 inches
Minimum web footage	500 feet
Core material	cardboard, plastic, metal
Core inside diameter	3.00, 6.00, or 8.00 inches
Core chucking	Expandable
Core length	web width to 58.375 inches
Web thickness	0.00025 to 0.010 inches
Minimum product bending radius	2 inches (minimum conveyance roller radius)
Test roller length	face length minimum of 2 inches wider than web provided
	(59.5 inch preferred)
Test roller diameter	3.5 to 6.0 inches
Test roller mounting method	dead shaft, 2 inch length each side, by 1.378 diameter (+0.001,-0.001 inch) live shaft, 2 inch length each side with a bearing OD of 1.378 (+0.000, -0.001 inch)