

# Your invitation to Canada's Leading Rolling Bearing Application & Maintenance Seminar



## Rolling Bearing Application and Maintenance Seminar

**November  
14,15,16,17, 2005**

NTN Bearing Corporation of Canada  
305 Courtney Park Drive West,  
Mississauga, Ontario

**Meet with leading  
technology, engineering  
and maintenance specialists to  
discuss solutions to your  
technical problems:**

- Bearing Failure Analysis
- Bearing Installation, Handling and Storage
- Fundamentals of Current Bearing Technology and Applications
- Shaft & Housing Fitting
- Radial Internal Clearance
- Bearing Lubrication
- Effective Preventative Maintenance

**Designed specifically to meet the  
needs of staff involved in the  
maintenance of machinery,  
whose duties include the  
installation and maintenance of  
anti-friction bearings.**



**To register or for more information call**  
*(Or see back cover for the registration form)*

**1-800-405-6720**

# The Workshop Presenters

## Dan Leah

Dan Leah, P.Eng. has over 25 years of experience in the bearing industry. He is the author of two published papers on bearing failures and maintenance techniques.

Dan has presented maintenance seminars to over 1,500 millwrights and mechanics coast to coast and has supervised numerous critical, large bearing installations.



## Randy Ikenouye

Randy Ikenouye, P. Eng. has worked in the bearing industry for over ten years. He graduated from the Mechanical Engineering program at the University of Toronto and became a professional engineer in 1997. Randy has worked with NTN's automotive clients providing failure analysis and technical service, and is currently Assistant Engineering Manager of NTN's industrial section providing technical service, failure analysis, equipment reviews, and training seminars.



## Sonny Wilcox

Sonny has over 20 years experience in the bearing industry and over 10 years experience in plant management. He has worked in all aspects of the bearing industry including sales, service, distribution and manufacturing. He has also received 5 certificates in ferrous metallurgy from the Metals Engineering Institute. Sonny is currently service manager for NTN Bearings.



## Marcus Wickert

Marcus Wickert, P.Eng. has worked in the NTN Bearing Engineering department for over twelve years and is currently the manager of the Canadian engineering team.

He graduated from Mechanical Engineering at the University of Toronto and became a professional engineer in 1995. Marcus has provided technical support to end users and has worked extensively with heavy industries providing technical services such as failure analyses, equipment reviews, bearing installations and maintenance seminars.



# Topics

## ANTI-FRICTION BEARINGS

This intensive 3 1/2 day course on the design, application and maintenance of anti-friction bearings, is presented using lectures and hands-on workshops. The workshops have been selected to highlight common maintenance problems which result in premature bearing failure.

### Bearing Installation

In conjunction with classroom lectures, the participants will learn, in a hands-on environment, the correct procedures for mounting the following types of bearings:

- large bore spherical roller bearings (including the use of hydraulics)
- tapered roller bearings (mounting and setting end play)
- deep groove ball bearings
- cylindrical roller bearings
- bearing units
- small bore spherical roller bearing pillow blocks

### Bearing Basics

The participants will learn the fundamentals of current bearing technology including:

- bearing design and materials
- cage configurations and materials: features and benefits
- extra precision: what is required
- bearing life: theory vs. reality

This session also includes an in depth discussion of bearing types, typical applications and nomenclature.

### Handling & Storage

Many bearings are doomed before they arrive at the machine. This session covers correct handling and storage methods and how to look for and evaluate pre-service damage.

### Plant Tour

How is a bearing made? Participants will visit one of Canada's most advanced bearing manufacturing plants.

## Who should attend this workshop:

Anyone involved in the maintenance of machinery and specifically, those whose duties include the installation and maintenance of anti-friction bearings. The program is structured so that it is not specific to any industry.

# Topics

## Shaft & Housing Fitting Practice

Premature bearing failure is often a result of a poor choice of shaft or housing fit. The participants will learn the fundamentals of fitting practice and master the step-by-step approach to selecting correct ISO shaft and housing fits for all types of anti-friction bearings.

## Bearing Failure Analysis

A major component of any effective preventative maintenance program is knowing what went wrong...and then correcting the problem. Bearing failure analysis is a pro-active, front line job that has proven to increase equipment up-time. An in depth lecture with samples and case studies is presented by one of the industry's leading authorities on bearing analysis and failure prevention.

## Radial Internal Clearance

How is it identified? How much is needed in a given application? What factors affect clearance? How is it measured? An issue that is crucial to optimal bearing operation is covered in detail. Included in this segment is a hands-on lab where participants will learn and practice correct methods for measuring radial internal clearance.

## Lubrication

Lubrication is the root cause of approximately 30% of all premature bearing failures. Although the lubricant is an integral component of every "bearing system", it is often overlooked. This very important topic is covered in detail. Topics include:

- lubrication fundamentals
- requirements of the bearing
- selecting a lubricant and evaluating lubricant performance
- methods of delivery
- re-lubrication basics
- diagnosing and solving problems

## Send Us Your Case Study - And We'll Solve It!

This is a great opportunity to pick up valuable knowledge from our Engineering and Service team. Simply indicate your interest in submitting a Case Study Problem by checking "Yes" under "Optional Case Study" in the Registration form, and we'll contact you to prepare a customized case study presentation to address your bearing question.

## Hands-on Labs

- Mounting large bore spherical roller bearings on solid and hollow shafts
- Mounting Ball Bearing Pillow Blocks (set screw, eccentric locking collar and adaptor sleeve types)
- Assembly of small bore split pillow block assemblies
- Bearing Failure Analysis
- Radial internal clearance
- Case Studies

Registered participants will be contacted and requested to submit one troublesome bearing problem from their operation.

Submissions will include failure sample(s), application drawing or sketch, equipment details and performance characteristics.

Analyses will be performed by our NTN Engineering Team and the results presented to the class as case studies.

## What you'll get by attending:

Each attendee will receive:

- Speaker Handouts
- Helpful checklists
- Comprehensive Worksheets
- Case Studies

## PLUS:

- Networking Lunches:

Many people tell us that one of the most important benefits of attending a seminar like this is the networking. At each break and luncheon, you will get a chance to talk with other maintenance professionals who face the same kinds of challenges you do.

- An Affordable Price

# REGISTRATION FORM

## Bearing Maintenance Made Easier

### ROLLING BEARING APPLICATION AND MAINTENANCE SEMINAR

#### LOCATION:

NTN Bearing Corporation of Canada  
305 Courtneypark Drive West  
Mississauga, Ontario

#### SEMINAR DATES:

November 14,15,16,17, 2005

#### 3 EASY WAYS TO REGISTER:

PLEASE COMPLETE THE  
REGISTRATION FORM AND:



**FAX** it to us at 905-564-9023  
24 hours a day. You will  
receive confirmation by fax and an  
invoice will follow in the mail.

**CALL** 1-800-405-6720 or  
905-564-2700 from 9:00 am  
to 5:00 pm EST. We will fax you  
confirmation and mail an invoice.



**MAIL** your form with cheque  
to: ROLLER BEARING  
MAINTENANCE SEMINAR  
REGISTRATION, NTN Bearing  
Corporation of Canada Inc, 305  
Courtneypark Drive West,  
Mississauga, Ontario L5W 1Y4.

**YES** I would like to reserve a place at the Rolling Bearing Application  
and Maintenance Seminar: November 14,15,16,17, 2005

**PLEASE NOTE THAT THIS SEMINAR IS LIMITED TO 20 PARTICIPANTS**

#### COMPANY / ORGANIZATION:

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ PROV \_\_\_\_\_ POSTAL CODE \_\_\_\_\_

PHONE \_\_\_\_\_ FAX \_\_\_\_\_

#### DELEGATE(S):

NAME \_\_\_\_\_ TITLE \_\_\_\_\_

NAME \_\_\_\_\_ TITLE \_\_\_\_\_

#### OPTIONAL CASE STUDY INFORMATION:

Yes, please contact me for details concerning a specific bearing problem.  
 No, I am not interested in submitting a case study.

#### REGISTRATION FEE:

\$995 + GST per person. Includes all materials, lunches, refreshments, but not  
hotel accommodations, dinners and flights (if applicable).

#### PAYMENT:

Visa, American Express or Cheque enclosed (please make cheque  
payable to NTN Bearing Corporation of Canada Ltd.)

Name: \_\_\_\_\_

Payment (please check one): Cheque\_\_ Visa\_\_ American Express\_\_

Credit Card Number: \_\_\_\_\_ Expiry Date: \_\_\_\_\_

#### SUGGESTED HOTEL ACCOMODATION:

Stage West, 5400 Dixie Road, Mississauga, Ontario L4W 4T4  
Phone: (905) 238-0159