

Training Schedule

- Electrical & Hydraulic Training
- Custom Training
- Seminars & Events

2010



Drive for Technology
Trade Show & Technical Symposium
April 13-14, 2010
Hanover Park, IL
www.drivefortechlogy.com



Training at CMA/Flodyne/Hydradyne

Custom Electrical System Training



Your requirements, your machines

If your employees require training on a specific machine or subject, we offer custom training held at our facility or yours. Our instructors provide training based on your schematics and machine manuals; we can train your employees on start-up procedures, component function and analysis, programming, troubleshooting and overall system operation.

Call us today to discuss your technology training needs!

Wisconsin/Michigan customers call: (262) 781-1815 or email training@cmafh.com

All other customers call: (630) 563-3600 or email training@cmafh.com

Custom & Scheduled Hydraulics Training

CMA/Flodyne/Hydradyne offers economical four and five day customer training on subjects such as **Basic and Advanced Hydraulics, Proportional Valves and Advanced Hydraulic System Design.** These classes are scheduled throughout the year and held at our training room in Hanover Park, IL. Upon completion of each session, you will receive a certificate showing the hours of training you have completed and you will keep the supplied textbook and/or manual for your reference library.

You may also schedule private training courses on any of the subjects that we offer. Contact your CMA/Flodyne/Hydradyne sales representative for more information and to get a detailed quote.



Custom Hydraulic Systems Training

If your employees require training on a specific machine or subject, we offer custom training held at our facility or yours. Our instructors provide training based on your schematics and machine manuals; we can train your employees on start-up and preventative maintenance procedures, component function and analysis, calibration procedures, troubleshooting and overall system operation.

Call us today to discuss your hydraulic training needs!

Call: (630) 563-3600 or email training@cmafh.com



Free Seminars

Seminars at CMAFH are your opportunity to learn about new technologies and applications from our suppliers. We offer free 1/2 and full day classes on current topics such as Machine Safety, Lean Manufacturing, Robotics and more. Please visit our website for the most up to date schedule as new seminars or events may be added throughout the year.

How to register

You can register Monday-Friday by calling our Training Department at (630) 563-3600 or emailing training@cmafh.com. If you are registering for a training class, please provide a purchase order or send a check made payable to CMA/Flodyne/Hydradyne. All registrants will receive a confirmation via email or fax.

To cancel your registration, please telephone or email your cancellation request no later than two weeks before the training date to receive a full refund. Your cancellation and refund status will be confirmed via email. If you cancel during the fourteen days preceding the training date, we will process your payment and reschedule you for a later date.

For more information:

Please call: (630) 563-3600 or email training@cmafh.com

Electrical Training

PLC Automation Training

Featuring the Bosch Rexroth L Series PLC

This is a three day course designed to provide a comprehensive primer for PLC technology and programming. The class will utilize the advanced, scalable IndraControl L hardware platform and is appropriate for anyone involved in the application of PLCs.



What you will learn

- Basic PLC technology
- Implementation of the Bosch Rexroth IndraControl L PLC
 - Communication
 - Target Settings
 - PLC configuration
 - Task configuration
 - Variable configuration
- Languages including structured text, ladder & function block programming
- How to apply knowledge with hands on demonstrations

Learning & Training Materials

- Each attendee will receive a workbook and handouts (as needed)
- Please bring your laptop with a licensed copy of IndraWorks software installed
- Lunch will be provided

Introduction to Servo Drives

Featuring the Bosch Rexroth Indradrive

This is a two day introductory level course for servo drive knowledge. It is appropriate for anyone involved in a first time servo drive application.

What you will learn:

- Installation connections
- On-board I/O
- Operating modes
- Commissioning with DriveTop/IndraWorks software

Learning & Training Materials

- Each attendee will receive a workbook and handouts (as needed)
- Lunch will be provided

Seminar Date

Schedule as needed

Please talk to your CMAFH sales representative or email training@cmafh.com.

Location

Can be held at your office or ours.

Cost

\$1200 per person

PLC Automation Training

\$800 per person

Basic Servo Drive

Training Locations

3265 Gateway Road, Suite 300
Brookfield, WI 53045
262-781-1815

1000 Muirfield Drive
Hanover Park, IL 60133
630-563-3600

Hydraulic Training Classes

Basic Hydraulic Training

This is a four day first level industrial hydraulic training course recommended for those who are new to hydraulic powered machines and those who have had no prior formal training in hydraulics technology.

Approximately 50% of the course involves hands-on lab training and attendees will receive a certificate upon successful completion of the course.

A few of the topics you will learn about:

- Standard hydraulic valve functions
- Basic setup and trouble-shooting
- Principles of fluid flow and pressure, work, power, actuator speed for hydraulic systems
- Hydraulic component symbols for reading and interpreting schematics
- The 10-12 basic hydraulic circuits used in most hydraulic systems
- Fixed displacement and variable displacement pumps
- Pressure type pump controls commonly used in open loop industrial systems
- Principles of fluid pressure and fluid flow, hydraulic power, heat generation
- Throttle valve speed control
- Hydraulic shock and how to limit its destructive effects
- Introduction to electro-proportional hydraulic valves

Training Materials:

Components for Inspection and/or Disassembly:

- Relief Valve
- Directional Control Valve
- Reducing Valve
- A10VSO Piston Pump
- 4WREE Proportional Valve
- 4WRZ Proportional Valve
- Three hydraulic test stands for hands on applications and training.

Basic Hydraulic Training Schedule

| | |
|-------------------------|--------------------------------|
| 7:30 a.m. - 8:00 a.m. | Continental Breakfast Provided |
| 8:00 a.m. - 12:00 noon | Training Class |
| 12:00 noon - 12:45 p.m. | Lunch Provided |
| 12:45 p.m. - 5:00 p.m. | Training Class |



Training Dates

October 11-14, 2010

Training Location

Hanover Park, IL

Tuition

\$650 per person
\$525 for groups of two or more.

Tuition includes

- seminar fee
- all student materials
- textbook
- custom workbook
- continental breakfast
- lunch

Registration

Please [click here](#) to register electronically for this class.

You may also register via:

- E-mail Training@cmafh.com
- Telephone 630-563-3600

Hydraulic Training Classes

Advanced Hydraulic Training

This is a four day second level industrial hydraulic training course for those who have completed Basic Hydraulic Training at CMA/Flodyne/Hydradyne.

Approximately 50% of the course involves hands-on lab training and attendees will receive a certificate upon successful completion of this course.

A few of the topics you will learn about

- Logical schematic reading and interpreting
- Proper fluid requirements
- In depth study of component operation
- System setup for improved efficiency and reliability
- Why hydraulic systems get hot and what to do about excessive heat
- Hydraulic fluid cleanliness and condition standards
- Understanding relief valves—disassembly, inspection, assembly, and testing
- Understanding reducing valves—disassembly, inspection, assembly, testing
- Understanding directional control valves—disassembly, inspection, assembly
- The use and set up of pilot chokes for pilot operated controls
- Controlling pilot pressure with pilot operated directional controls
- Troubleshooting exercises to develop troubleshooting skills
- Understanding variable displacement pumps, basic pressure regulating controls, setup and commissioning
- Review fundamental circuits used in many industrial systems and learn to setup
- Knowledge reinforcement with hands on lab exercises

Training Materials

- Components for Inspection and/or Disassembly
- 3 Hydraulic trainers for hands on applications and training

Advanced Hydraulic Training Schedule

| | |
|-------------------------|--------------------------------|
| 7:30 a.m. - 8:00 a.m. | Continental Breakfast Provided |
| 8:00 a.m. - 12:00 noon | Training Class |
| 12:00 noon - 12:45 p.m. | Lunch Provided |
| 12:45 p.m. - 5:00 p.m. | Training Class |

Requirements

- Completion of Basic Hydraulic Training at CMA/Flodyne/Hydradyne or permission to attend from our training department is required.
- Please bring your textbook, Using Industrial Hydraulics, with you to this class.



Training Date

November 15-18, 2010

Training Location

Hanover Park, IL

Tuition

\$650 per person or
\$525 for groups of two or more.

Tuition includes

- seminar fee
- student materials
- custom workbook
- continental breakfast
- lunch

Registration

Please *click here* to register electronically for this class,

You may also register via:

- E-mail Training@cmafh.com
- Telephone 630-563-3600

Seminars and Events

Hydraulic Fluid Service Seminar

Free, one day seminar

Our most popular annual seminar, now in its 11th year: the Hydraulic Fluid Service Seminar is a preventative maintenance & cost savings educational seminar designed to help you understand the causes and effects of hydraulic fluid contamination.

Who should attend? Do you have questions about ISO codes and beta ratios, hydraulic fluid monitoring, dirt holding capacity, or how hydraulic fluid cleanliness affects your components? Would you like to reduce costly equipment breakdown and learn how to extend the life of your fluids? **If you answered yes to any of these questions, this seminar is for you.**

Get the dirt from those who want to get the dirt out! Hosted by representatives from the hydraulic filtration, OEM component, and oil supplier industries, this seminar will present a thorough analysis of contamination issues from all perspectives.

What you will learn

- Learn methods to **extend fluid life**
- Learn methods to **reduce machine downtime**
- Learn by demonstration how to immediately **control contamination**
- Learn methods to achieve maximum **cost efficiency**

Learning & Training Materials

- You will be given reference materials to use in the classroom and take home
- Each presenter will have power points and product samples for illustration
- Live demonstrations and trade show booths open during breakfast and lunch

Seminar Schedule

| | |
|-------------------------|-------------------------------------------------|
| 7:00 a.m. — 8:00 a.m. | Continental Breakfast and Product Demos |
| 8:00 a.m. — 9:00 a.m. | Causes and Effects of Fluid Contamination |
| 9:00 a.m. — 9:45 a.m. | The Oil Supplier's Perspective on Contamination |
| 10:00 a.m. — 11:00 a.m. | Design Considerations for Filtration |
| 11:00 a.m. — 12:00 p.m. | Rating Systems for Oil and Filters |
| 12:00 p.m. — 1:00 p.m. | Lunch Provided, Live demonstrations |
| 1:00 p.m. — 2:00 p.m. | Panel Discussion & Question and Answer |

Industries currently served by this program are:

The complete industrial and mobile hydraulic market including:

| | | |
|-------------------|----------------------------|------------------------|
| Power Generation | Paper Making Machines | Railroads |
| Steel Mills | Mining | Heavy Duty Vehicle |
| Injection Molding | Coal Crushers | Construction Equipment |
| Die Casters | Wind Turbines | Agricultural Equipment |
| Clamping Systems | Solar Energy Plants | Elevating Platforms |
| Test Machines | Chemical Processing Plants | Forging |
| Aviation | Welding Robots | Shipbuilding |



Seminar Date

October 22, 2010

Seminar Location

Hanover Park, IL

Cost

Free Seminar!

Lunch Included

Registration

Please *click here* to register electronically for this class,

You may also register via:

- E-mail Training@cmafh.com
- Telephone 630-563-3600



Seminars and Events

Drive for Technology

Free Trade Show and Technical Symposium

Hanover Park, IL April 13-14, 2010 Register to attend!



Attend your choice of 17 in-depth seminars held daily and a tradeshow and demonstrations from 25+ of the top suppliers in the areas of motion control, hydraulics, electric, power transmission and linear systems.

This is a FREE event. Please register online at www.drivefortechology.com or call 630-563-3628 to register via telephone. You may select up to three seminars daily.

Just for You: Each attendee will receive a complimentary windshirt valued at \$75.00. Breakfast and lunch will be provided and you can enter to win from among dozens of raffle prizes donated by our sponsors. Please attend our V.I.P. cocktail party on April 13 from 4:30 p.m. - 6:00 p.m. held on our second floor!

Register to attend at www.drivefortechology.com

Event Dates & Times

April 13-14, 2010

7:00 a.m. - 6:00 p.m.

Event Location

1000 Muirfield Drive
Hanover Park, IL 60133

Free Event!

Drive for Technology Daily Schedule

| Technical Sessions 1: Please select one | | Green Technology | Safety | Connectivity | Presented by | |
|-----------------------------------------|--------------------------|-------------------------------|-----------------------------------------------------------------|--------------|----------------------------------------------------|---------------------------|
| April 13 | April 14 | Daily Schedule | | | Presentations and Events | Presented by |
| <input type="checkbox"/> | <input type="checkbox"/> | 7:00 a.m.— 8:00 a.m. | Continental Breakfast Provided [Trade show open all day] | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | 8:00 a.m. — 9:30 a.m. | | | Safety by Design: Soft & Hard Guarding | Omron STI & Bosch Rexroth |
| <input type="checkbox"/> | <input type="checkbox"/> | 8:00 a.m. — 9:30 a.m. | | | Hydraulic Maintenance & Troubleshooting | CMAFH |
| <input type="checkbox"/> | <input type="checkbox"/> | 8:00 a.m. — 9:30 a.m. | | | Drive and Motor Safety | Bosch Rexroth |
| <input type="checkbox"/> | <input type="checkbox"/> | 8:00 a.m. — 9:30 a.m. | | | Lean Manufacturing & Ergonomic Workcell Design | Bosch Rexroth |
| <input type="checkbox"/> | <input type="checkbox"/> | 8:00 a.m. — 9:30 a.m. | | | Next Generation Distributed I/O | Eaton & Balluff |
| <input type="checkbox"/> | <input type="checkbox"/> | 8:00 a.m. — 9:30 a.m. | | | Reducing Electrical Enclosure/Panel Size | Phoenix Contact & Rittal |
| <input type="checkbox"/> | <input type="checkbox"/> | 9:30 a.m. - 10:30 a.m. | Break [Trade show open all day] | | | |
| Technical Sessions 2: Please select one | | | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | 10:30 a.m. — 12:00 p.m. | | | New Safety Standards - Machinery Directive | Bosch Rexroth |
| <input type="checkbox"/> | <input type="checkbox"/> | 10:30 a.m. — 12:00 p.m. | | | Industrial Wireless Communication | Phoenix Contact |
| <input type="checkbox"/> | <input type="checkbox"/> | 10:30 a.m. — 12:00 p.m. | | | Hydraulic Proportional and Servo Technologies | Bosch Rexroth |
| <input type="checkbox"/> | <input type="checkbox"/> | 10:30 a.m. — 12:00 p.m. | | | Enclosure Climate Control | Rittal |
| <input type="checkbox"/> | <input type="checkbox"/> | 10:30 a.m. — 12:00 p.m. | | | Direct Drive Servo Motors | Danaher |
| <input type="checkbox"/> | <input type="checkbox"/> | 12:00 p.m. - 2:00 p.m. | Complimentary Lunch [Trade show open all day] | | | |
| Technical Sessions 3: Please select one | | | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | 2:00 p.m.— 3:30 p.m. | | | Safety by Design: Soft Guarding/Hard Guarding | Omron STI & Bosch Rexroth |
| <input type="checkbox"/> | <input type="checkbox"/> | 2:00 p.m.— 3:30 p.m. | | | Safety PLC and Controllers | Phoenix Contact |
| <input type="checkbox"/> | <input type="checkbox"/> | 2:00 p.m.— 3:30 p.m. | | | Sensing & Feedback Technologies | Balluff |
| <input type="checkbox"/> | <input type="checkbox"/> | 2:00 p.m.— 3:30 p.m. | | | New Trends in Automation Technology | CMAFH |
| <input type="checkbox"/> | <input type="checkbox"/> | 2:00 p.m.— 3:30 p.m. | | | Principles of Hydraulic Filtration | Hydac |
| <input type="checkbox"/> | <input type="checkbox"/> | 2:00 p.m.— 3:30 p.m. | | | Integrated Motor/Drives with Rockwell Connectivity | Bosch Rexroth |
| <input type="checkbox"/> | <input type="checkbox"/> | 3:30 p.m. — 5:00 p.m. | Trade Show [Trade show closes at 5:00 p.m.] | | | |