

# Training Schedule 2010

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



**Drive for Technology**  
Trade Show & Technical Symposium  
**April 13-14, 2010**  
Hanover Park, IL  
[www.drivefortechনology.com](http://www.drivefortechনology.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](mailto:training@cmafh.com)

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

For hydraulic training inquiries please call: (630) 563-3600 or email [training@cmafh.com](mailto: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 for seminars and scheduled training classes Monday-Friday by calling our Training Department at (630) 563-3600 or emailing [training@cmafh.com](mailto:training@cmafh.com). If you are registering for a scheduled training, please provide a purchase order or arrange for alternate payment. All registrants will receive a confirmation via email or fax.

To cancel your registration, please call with 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 or fax. 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](mailto: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)
- Continental breakfast and lunch will be provided

#### Seminar Date

Schedule as needed

Please talk to your CMAFH sales representative or email [training@cmafh.com](mailto: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@cmaf.com](mailto:Training@cmaf.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](mailto: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 21, 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](mailto: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 by industry leaders on the latest in Electro-mechanical, Hydraulic and Pneumatic technologies. Walk the trade show for 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](http://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. You are cordially invited to attend our V.I.P. reception on April 13 from 4:30 p.m. - 6:00 p.m. held on our second floor!

### Event Dates & Times

April 13-14, 2010

7:00 a.m. - 5:00 p.m.

### Event Location

1000 Muirfield Drive  
Hanover Park, IL 60133

Free Event!

## Drive for Technology Daily Schedule

### Technical Sessions 1: Please select one

April 13	April 14	Daily Schedule	Presentations and Events	Green Technology	Safety	Connectivity	Presented by
<input type="checkbox"/>	<input type="checkbox"/>	<b>7:00 a.m.— 8:00 a.m.</b>	<b>Continental Breakfast Provided [Trade show open all day]</b>				
		8:00 a.m. — 9:30 a.m.	Safety by Design: Soft & Hard Guarding				Omron STI & Bosch Rexroth
		8:00 a.m. — 9:30 a.m.	Hydraulic Maintenance & Troubleshooting				CMAFH
		8:00 a.m. — 9:30 a.m.	Drive and Motor Safety				Bosch Rexroth
		8:00 a.m. — 9:30 a.m.	Lean Manufacturing & Ergonomic Workcell Design				Bosch Rexroth
		8:00 a.m. — 9:30 a.m.	Next Generation Distributed I/O				Eaton & Balluff
		8:00 a.m. — 9:30 a.m.	Reducing Electrical Enclosure/Panel Size				Phoenix Contact & Rittal
		<b>9:30 a.m. - 10:30 a.m.</b>	<b>Break [Trade show open all day]</b>				

### Technical Sessions 2: Please select one

		10:30 a.m. — 12:00 p.m.	New Safety Standards - Machinery Directive				Bosch Rexroth
		10:30 a.m. — 12:00 p.m.	Industrial Wireless Communication				Phoenix Contact
		10:30 a.m. — 12:00 p.m.	Hydraulic Proportional and Servo Technologies				Bosch Rexroth
		10:30 a.m. — 12:00 p.m.	Enclosure Climate Control				Rittal
		10:30 a.m. — 12:00 p.m.	Direct Drive Servo Motors				Danaher
		<b>12:00 p.m. - 2:00 p.m.</b>	<b>Complimentary Lunch [Trade show open all day]</b>				

### Technical Sessions 3: Please select one

		2:00 p.m.— 3:30 p.m.	Safety by Design: Soft Guarding/Hard Guarding				Omron STI & Bosch Rexroth
		2:00 p.m.— 3:30 p.m.	Safety PLC and Controllers				Phoenix Contact
		2:00 p.m.— 3:30 p.m.	Sensing & Feedback Technologies				Balluff
		2:00 p.m.— 3:30 p.m.	New Trends in Automation Technology				CMAFH
		2:00 p.m.— 3:30 p.m.	Principles of Hydraulic Filtration				Hydac
		2:00 p.m.— 3:30 p.m.	Integrated Motor/Drives with Rockwell Connectivity				Bosch Rexroth
		<b>3:30 p.m. — 5:00 p.m.</b>	<b>Trade Show [Trade show closes at 5:00 p.m.]</b>				