

**TECHNICAL
WELDING**

TRAINING 2024

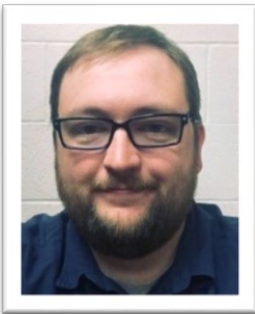
Course catalog

Shady Grove – Pennsylvania, USA





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Our Capabilities:

Our factory-certified instructors offer operating systems, components, maintenance, and repair training on all our products: Grove, GMK, Manitowoc, National Crane, and Potain.

The Manitowoc Product Support Training Center is an innovative leader in advanced crane industry training. Our onsite and online training curriculum is designed with your profits and your safety in mind. With professional and experienced instructors, our training helps you develop the product knowledge you need to be as productive as possible.

Please contact us if you are interested in Spanish-language instruction.

Our Facilities:

Shady Grove, PA: This site offers multiple state of the art classrooms. A large hands-on simulator lab to include simulators of multiple generations of Grove domestic, GMK All Terrain and National Boom Truck operating systems. A multiple bay training building is also used to accommodate multiple products for troubleshooting and is currently equipped with a GMK4100L-1 dedicated solely for training purposes. A current CCS Potain tower crane is onsite dedicated solely for training purposes.

Available lab workstations:

- Three generations of GMK simulators to include RCL's
- Four generations of Grove domestic RCL simulators
- Four generations of Grove domestic simulators
- GHC simulator to include the RCL
- Multiple National Boom Truck simulators to include RCL's
- EPIC Hydraulic/Electrical Simulators
- Hydraulic and Electrical workstations
- Tower crane erection / dismantling / troubleshooting
- Mobile crane operation
- CCS equipped immersive operator simulator

Manitowoc, WI: This site offers multiple state of the art classrooms. 2 large hands-on simulators labs to include simulators of multiple generations of Manitowoc EPIC, Canbus and Crane Control Systems.

Available lab workstations:

- 4 generations of Lattice Crane simulators, from conventional cranes to CCS generation;
- 8 hydraulic benches with pumps and motors that can simulate the function of the machines.
- Small Crawler simulator for the small Crawler range.
- A CCS cabin simulator with wireless remote
- Also available in Portugal, Dubai and Brazil:
 - Epic Simulators
 - Canbus Version 1 and version 2 Simulator;
 - Crane in the box Simulator
 - CCS Simulator

Contact us for more information about our global training centers located in Wilhelmshaven, Germany; Monterrey, Mexico; Sao Paulo, Brazil and Dubai, UAE.

Our Address:

1565 Buchanan Trail East
Shady Grove, PA 17256

Local Airports:

Baltimore/Washington (BWI) International Airport
Washington Dulles (IAD) International Airport
Harrisburg, PA (MDT) International Airport
Hagerstown Regional Airport (HGR)

Rental Car: A rental car will be required for transportation to and from the airport. A rental car will also be required for daily transportation to and from the Manitowoc Training Facility.

If transportation service is required; arrangements must be made prior to the start of class by contacting Toni Pagliaro at Toni.Pagliaro@manitowoc.com. ****Please note**** all transportation fees incurred will be billed in addition to the cost of the training course you are attending.

Recommended Hotels:

1. Homewood Suites, 1650 Pullman Lane, Hagerstown, MD 21740
Phone: (301) 665-3816
2. Springhill Suites by Marriott, 17280 Valley Mall, Hagerstown, MD 21740
Phone: (301) 582-0011
4. Holiday Inn Express, 241 Railway Lane, Hagerstown, MD 21740
Phone: (301) 745-5644
4. Courtyard by Marriott, 17270 Valley Mall Road, Hagerstown, MD 21740
Phone: (301) 582-0043

Hotel arrangements, hotel expenses, transportation, breakfast and evening meals are the student's responsibilities.

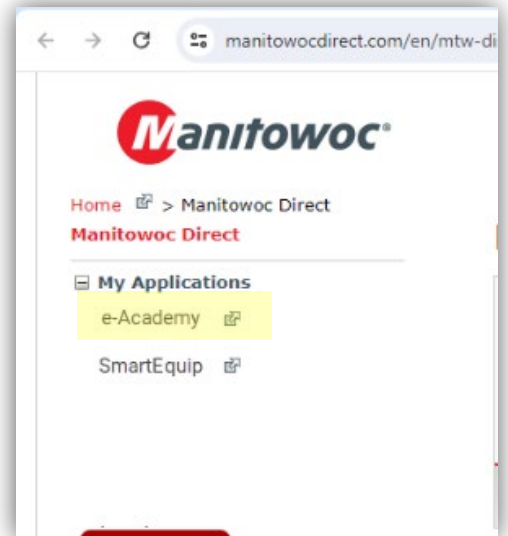
Manitowoc does provide a catered lunch Monday-Thursday. No lunches are served on Fridays. Coffee, sodas, and bottled water are available daily in the training cafeteria at no cost to the students. Snacks are available anytime in the Training Cafeteria vending machine.

Request an Account:

To register to attend a training class, students must have a Manitowoc Direct account with access to the Manitowoc e-Academy application. Please visit this website and complete the required fields:

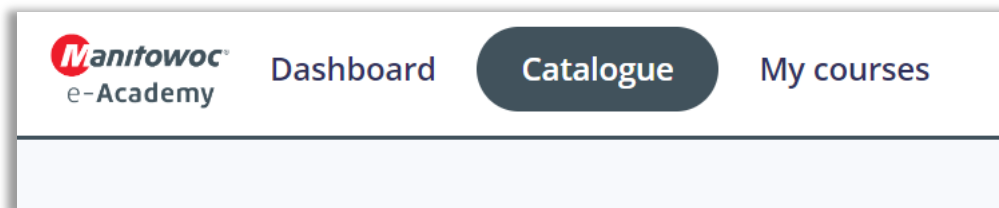
<http://www.manitowoccranes.com/en/manitowoc-direct/manitowoc-direct-request-access>

Once registered, users should login to Manitowoc Direct, click to expand My Applications, then select e-Academy to enter our website.



Manitowoc e-Academy:

Once logged in, you will see a Catalogue section where you will find our available courses, with upcoming dates listed.



Any registration/payment questions should be directed to Toni Pagliaro by calling 717-593-5918, or by email: toni.pagliaro@manitowoc.com.

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For customers & dealers **Page 07 - 09**

Section 2 Technical Welding Courses
For dealers **Page 10 - 12**



Technical Welding

For customers & dealers



Course	Pages	Course name
BILR	08-09	Boom Inspection & Lacing Repair

This courses is available to Manitowoc, Grove, National Crane, and Potain customers and dealers. To register for a course please use the Manitowoc e-Academy in Manitowoc Direct. Instructions for requesting an account are found on page 5 of this catalog.

Boom Inspection & Lacing Repair



Aim of training course:

This course will showcase the fabricated boom components of Manitowoc lattice crane models. Students will be taught the inspection and lacing replacement process used on Manitowoc cranes. Instruction will include the Manitowoc Folio 1316 document in class and by participating in actual hands-on boom inspection. Sessions at our factory weld school will help students develop the proper skills to perform in-field removal and replacement of boom lacings.

Training will include vertical, horizontal, and overhead welding techniques. Any welding technicians who progress quickly and complete the required exercises will have the option to work on training materials for the next level course. Students will also gain an understanding of O-Sheets and the methods used for ordering replacement lacings.

Separate certificates are issued for Boom Inspection and demonstrating lacing replacement competence.

Prerequisites

- See next page.

Duration

- 4 days
- Monday 5:00 am to Thurs 3:30 pm

Number of participants

- 5 participants

Program:

Students are trained on:

- Properly inspecting Manitowoc Lattice Boom Sections per the requirements of Folio 1316.
- Locate boom identification
- Inspect main chord and lacing straightness
- Corrosion and abrasion limits
- Dents to tubular chords and lacings
- Proper removal and replacement of lacing components.
- PT (Dye Penetrant) in-process inspection of a main chord member when replacing lacings. *Note PT Inspection training in this course does not qualify the welder per ASNT TC1A. Training is designed to be informative for the general use of the PT Inspection process only.*

Teaching Methods:

10% classroom, 90% hands-on welding.

Equipment:

- Training room
- Boom sections
- Weld machines

Cost:

- \$2,600 per student course fee*
**dealer pricing may vary*

Dates:

- Check the Manitowoc e-Academy in Manitowoc Direct for available course sessions.

Boom Inspection & Lacing Repair (cont.)



Class Prerequisite:

A Minimum of one-year of welding experience with the SMAW welding process is strongly recommended as this course is not for an entry level welder. Prior to signing up for the BILR course, all students must have passed the Manitowoc WP4001 and WP4002 Welder Performance Qualifications. These tests meet and exceed the requirements of the AWS D1.1 Structural Welding code – current edition for Vertical (**3G**) and Overhead (**4G**) welding positions with the S.M.A.W. Process. **These tests shall be supervised by a Certified Welding Inspector (CWI). Guided bend tests shall be performed per AWS D1.1 (100ksi. material) and the supporting Welder Performance Qualification Records (WPQR's) created.**

Documents to be sent to Manitowoc for Review and Acceptance

- Welder Performance Qualification Test Record(s). Test records shall note the welding procedure used as Manitowoc WP4001 and Manitowoc WP4002. The qualification test record shall also state that the tests meet the requirements for both the AWS D1.1 Structural Welding Code and the acceptance requirements of the Manitowoc WP4001 or WP4002 respectively.

Required Prerequisite Welder Qualification Tests

- Required Vertical (**3G**) Test:
 - A 3/8" (Limited thickness) plate test (**Manitowoc PN#810144156**) welded and inspected following procedure **WP4001**.
- Required Overhead (**4G**) Test:
 - A 3/8" (Limited thickness) plate test (**Manitowoc PN#810144156**) welded and inspected following procedure **WP4002**.

Note: All tests require using an 1/8" diameter **E11018H4R** grade stick electrode. Electrodes with a "G" designation are not acceptable for use.

Student is Responsible For:

- Transportation, Room, & Board
- Proper classroom and shop attire, **NO SHORTS or SANDALS**
- Arriving to class on time each day (Class start time 5:30am – 3:30pm)
- Welding Shield/Helmet and replacement cover and filter lenses
- Grinding Shield
- Safety Glasses w/side shields
- Safety Shoes (metatarsal guards preferred)
- Leather gloves and Jacket (suitable for overhead welding).
- Necessary vision correction (prescription glasses)
 - *Please note that contact lenses are not allowed in any welding operation.*

Be advised that all documentation above must be submitted and approved at least 30 days before the start date of the course. Any enrollments not submitted or not approved by our welding team by that time will be canceled and students will be encouraged to enroll in the next available session.

Technical Welding

For dealers



Course	Pages	Course Description
Adv. Field Welding	10-11	Advanced Field Welding

This course is available to Manitowoc, Grove, National Crane, and Potain dealers. Customers may attend this course with prior approval from their dealer.

Advanced Field Welding



Aim of training course:

This course will showcase the fabricated components of lattice boom crane models.

Students will be instructed in the various Manitowoc weld procedures and then given the opportunity to perform those procedures in the required positions. Training will include vertical, horizontal, and overhead welding techniques. Training covers SMAW and GMAW weld processes as commonly used in Manitowoc weld procedures.

Students will complete a workmanship sample applying the various skills taught during the two weeks.

At the end of the class, successful students will receive a certificate for Advanced Welding.

Prerequisites

- Dealer approval
- Successful completion of Boom Inspection & Lacing Repair
- See next page.

Duration

- 8 days
- Week 1 Tuesday 5:00 am to
Week 2 Thurs 3:30 pm

Number of participants

- 5 participants

Program:

- Learn to perform in-field repairs and/or modifications on Manitowoc Lattice Boom Cranes on a case-by-case basis when approved by the Manitowoc Crane Care Structural Repair Group or the Manitowoc Welding Engineer.
- Be trained to assist Manitowoc Field Weld Technicians in making major modifications and repairs.
- Reduce need for Manitowoc Weld Technicians on certain repairs/modifications.

Teaching Methods:

10% classroom, 90% hands-on welding.

Equipment:

- Training room
- Fabricated components
- Weld machines

Cost:

- \$7,000 per student course fee*
*dealer pricing may vary

Dates:

- Check the Manitowoc e-Academy in Manitowoc Direct for available course sessions.

Advanced Field Welding (cont.)



Class Prerequisite:

Candidates for Advanced Field Welding must have successfully completed the Manitowoc Boom Inspection and Lacing Repair (BILR) course.

Prior to signing up for the Advanced Field Welding course, all students must have passed the Manitowoc WP4003, WP4004, and WP4005 Welder Performance Qualifications. These tests meet and exceed the requirements of the AWS D1.1 Structural Welding code – current edition for Vertical (**3G**), Overhead (**4G**), and Horizontal (**2G**) welding positions with the defined process (S.M.A.W. or G.M.A.W.) **These tests shall be supervised by a Certified Welding Inspector (CWI). Guided bend tests shall be performed per AWS D1.1 (100ksi. material) and the supporting Welder Performance Qualification Records (WPQR's) created.**

Documents to be sent to Manitowoc for Review and Acceptance

- Welder Performance Qualification Test Record(s). Test records shall note the welding procedure used as Manitowoc WP4003, Manitowoc WP4004, and Manitowoc WP4005. The qualification test record shall also state that the tests meet the requirements for both the AWS D1.1 Structural Welding Code and the acceptance requirements of the Manitowoc WP4003, WP4004, or WP4005 respectively.

Required Prerequisite Welder Qualification Tests

- Required Vertical (**3G**) Test:
 - A 1" (Unlimited thickness) plate test (**Manitowoc PN#810144136**) welded and inspected following procedure **WP4003**.
- Required Overhead (**4G**) Test:
 - A 1" (Unlimited thickness) plate test (**Manitowoc PN#810144136**) welded and inspected following procedure **WP4004**.
- Required Horizontal (**2G**) Test:
 - A 3/8" (Limited thickness) plate test (**Manitowoc PN#810144156**) welded and inspected following procedure **WP4005**.

Note: All tests require using an 1/8" diameter **E11018H4R** grade stick electrode. Electrodes with a "G" designation are not acceptable for use.

Student is Responsible For:

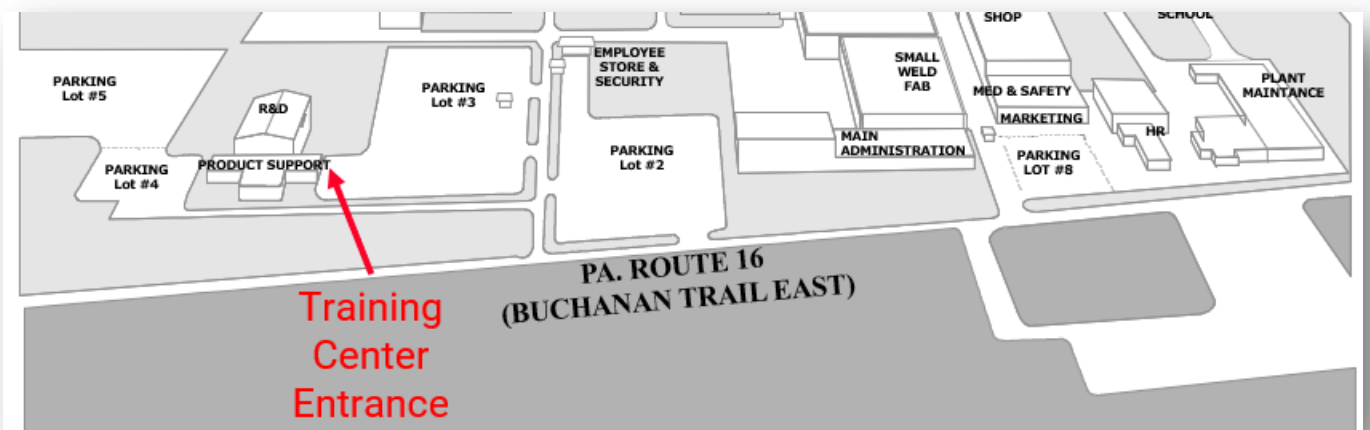
- Transportation, Room, & Board
- Proper classroom and shop attire, **NO SHORTS or SANDALS**
- Arriving to class on time each day (Class start time 5:30am – 3:30pm)
- Welding Shield/Helmet and replacement cover and filter lenses
- Grinding Shield
- Safety Glasses w/side shields
- Safety Shoes (metatarsal guards preferred)
- Leather gloves and Jacket (suitable for overhead welding)
- Necessary vision correction (prescription glasses)
 - *Please note that contact lenses are not allowed in any welding operation.*

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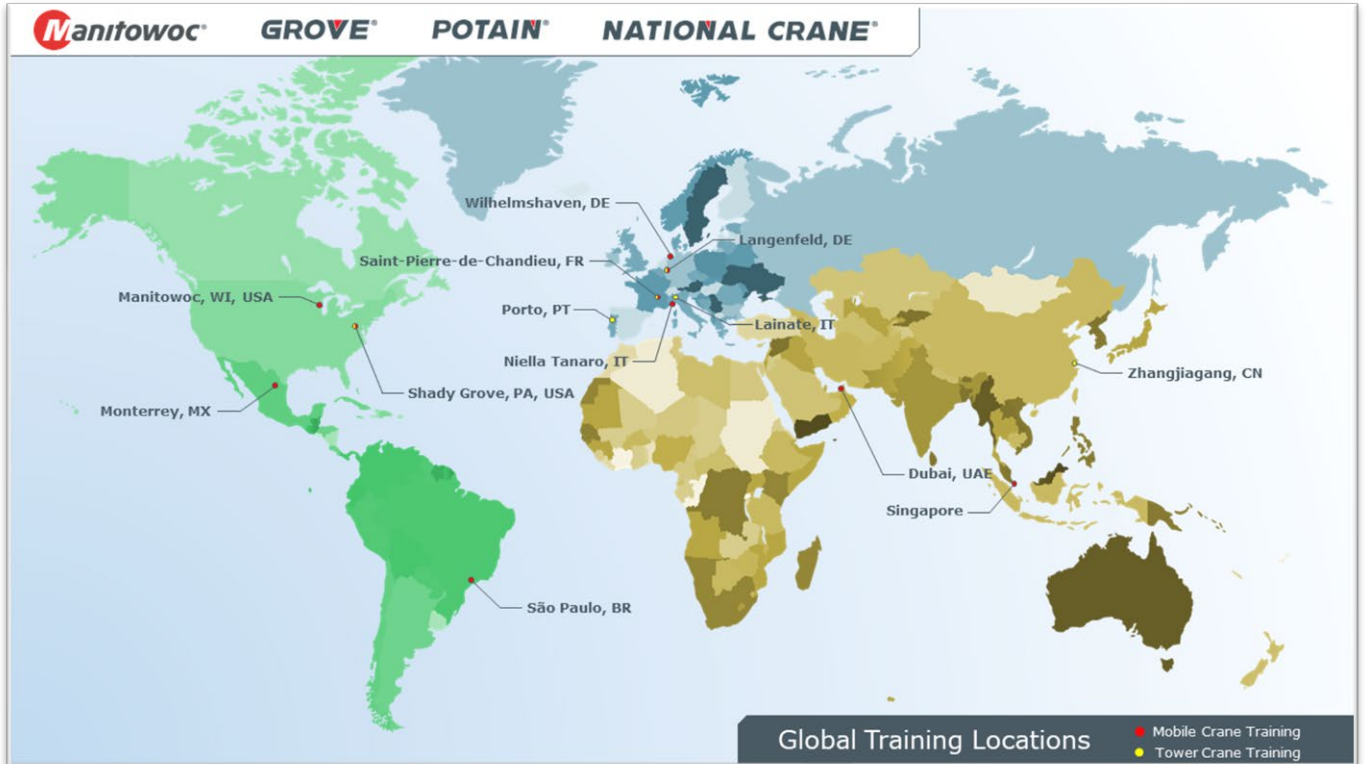
Address/Map



Manitowoc Training Center
1565 Buchanan Trail East
Shady Grove, PA 17256
www.manitowoccranes.com



Manitowoc Training Centers



Manitowoc Customer Support when you need it.

The assurance of the world's most advanced crane service and support to get you back to work fast.



Manitowoc Finance helps you get right to work generating profits for your business.

Financial tools that help you capitalize on opportunity with solutions that fit your needs.

This document is non-contractual. Constant improvement and engineering progress make it necessary that we reserve the right to make specification, equipment, and price changes without notice. Illustrations shown may include optional equipment and accessories and may not include all standard equipment.