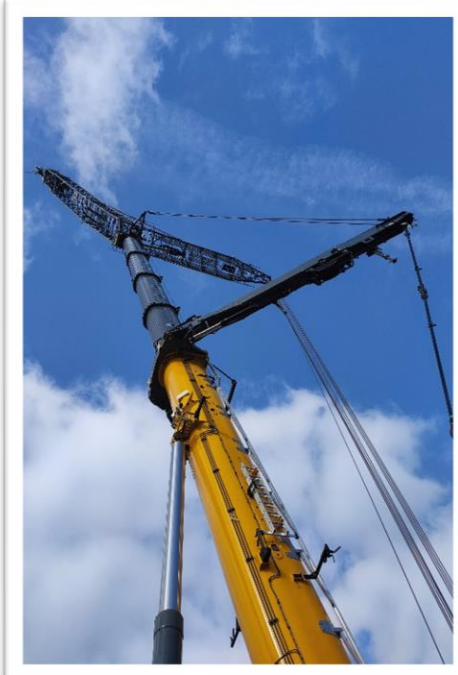
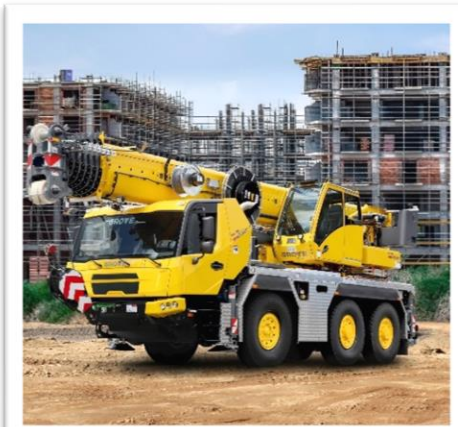


TRAINING 2024

Course catalog

Wilhelmshaven - Germany



Foreword

We have expanded our offerings to include a GMK update course about the new GMK4070L, as well as a basic course on GMK technology.

Furthermore, we would like to introduce our LMS (Learning Management System), where you can book all training courses directly online. You can find more information about the LMS on page 40.

If you have any questions or special wishes, please do not hesitate to contact us.

Best regards,

Grove Training Center Wilhelmshaven, Germany

Contact and Trainers



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Overview

Location

- A strategic location at the “Center of Excellence” for All Terrain (GMK) cranes in Wilhelmshaven, Germany.

Languages spoken

- English, German
- Other languages with interpreters
- Other languages, if available on local subsidiaries

Our Certifications

- Operator training courses in cooperation with BG Verkehr (German Employers Liability Insurance Association)
- Operator training corresponding ECOL regulations
- MTU & TÜV certified trainers
- An “in Factory” Training Center
- Development of the operating training courses to conform with ISO9001 requirements

Our profile

- More than 1.000 trainees and visitors from around the globe annually
- Bilingual instructors (English & German)

Our global offer

- 16 modules from 2 days to 2 weeks covering crane operation, crane technology, crane diagnostics, crane erection, crane maintenance, crane safety or any other specific course according to your needs.

Our equipment

- Training on various GMK Cranes from the factory available
- 4 training rooms with state-of-the-art smart boards
- Practical lessons on simulators and cranes

Find our brochure on our website

<https://www.manitowoc.com/technical-learning-center>



Practical Information

Costs

- Refer to schedule
- Please inform all trainees, that hotel rooms, meals, telephone, bar, weekend trips, taxi etc. are not included in the course fee

Travel arrangements

- Please inform the Training Center of the trainees' travel arrangements. If they are flying to Bremen or traveling by train, we can arrange to have them collected by taxi (extra cost), if this is requested before arrival

Registration

You will find enclosed "registration purchase order" forms which must be filled out and returned to the Training Center for confirmation

- Trainees must be over 18 years old and must be declared fit to work at heights
- Manitowoc denies responsibility for accidents and/or illnesses that might occur during the training courses. We therefore request, that you cover your trainees against any kind of risks and provide them with the necessary insurance certificates and forms

Clothing

- Most of our training programs involve numerous practical exercises outside. Please inform the trainees that they must bring their **PPE** and weatherproof clothing. **Safety shoes are mandatory**. We can support safety glasses and helmets to the trainees

Cancellation

- In case of cancellation, please inform the training Center immediately in order to avoid extra charges

Laptop PC

- Please refer to page **39**

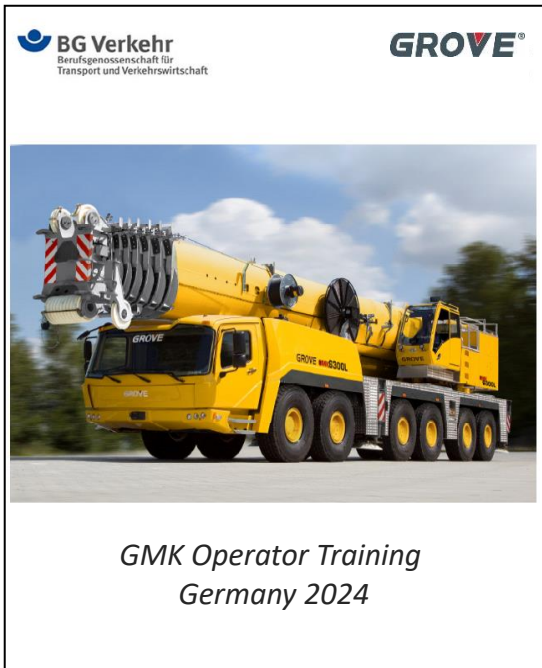
Contact us

Email address TrainingGMK@manitowoc.com

Address

Manitowoc Crane Group Germany GmbH
Industriegelände West
26389 Wilhelmshaven
Germany

Certificates



Operator training
With license from BSK and
German Employers Liability
Insurance Association



MTU Trainer Certificate



Cummins Training Certificate

Notes

Course summary

Section 1 Crane Introduction / Customer courses
Page 09 - 15

Section 2 Technician Development Program 2024
Page 16 - 26

Section 3 Certified Technician Development 2024
Page 27 – 32

Section 4 Legacy Course
Page 33 - 34

Section 5 Laptop requirements
Registration, Address & Map **Page 36 – 39**

GENERAL TERMS

- Every training course requires a minimum of 3 participants
- All trainings can be performed on a weekly fee basis
Example: If you have more than 3 participants per training, we will offer a week or group fee in Wilhelmshaven
weekly fee in Wilhelmshaven → 7.000€
- All trainings can be performed as an “on-site” course in your facility. Special offer on-site fee consists weekly fee, without flight, hotel and expenses
→ 7.500€

If you have any questions or special wishes, please do not hesitate to contact us.

Crane Introduction / Customer Courses

Course	Page	Course name
GMK 0.2C	11	GMK Crane Operating and Maintenance
GMK 1.1C	12	GMK Technical Introduction First steps into the technology of GMK
GMK 2.1C	13	GMK Basic Electric and Hydraulic
GMK 3.1C	14	GMK ECOS / EKS Customer
GMK 5.1C	15	GMK CCS Technology and Diagnostics



Aim of training course

This course is mainly for crane operators, but also for mechanics / technicians.

After performing this course, the student will have a basic knowledge of how to handle a Grove crane.

Program

THEORY

- RCL system incl. EN13000 overview, safety devices
- load capacity charts, outrigger loads, wind loading, operators' manuals
- crane terminology & symbols
- lattice swing-away, power tilt jib
- emergency boom recovery

PRACTICE

- Practical tasks on the crane

Teaching methods

- Detailed theory of operation
- Practical tasks on the crane
- Use of specific documents

Prerequisites

- Trainees must be over 18 years old
- Trainees have to bring their PPE

Duration

- 5 days
- Monday 12:30 pm to Friday 11:30 am

Number of participants

- 6 participants



Equipment

- Training room
- Technical documents
- GMK crane for training

Validation of knowledge

- Handover of certificate

Dates

- On request

Cost

- Training fee 1.650€

Aim of training course

This course provides an initial overview of the GMK types and the technology of these cranes.

You will get basic information about the drive and power train of the carrier, the operation of the MegaTrak system and the different steering systems. As you progress, you will learn about the various components of the superstructure such as the drive, boom, telescoping systems and jibs.

The both chapters of crane controls and load moment limitation will also be explained. All components are shown by means of models and graphics and are demonstrated directly on the cranes during the factory tour.

Program

- GMK crane types
- Driveline, suspension and steering
- Boom and superstructure technology
- RCL system from past to present
- Control systems from past to present

Teaching methods

- Detailed theoretical training
- Models, factory tour



Equipment

- Training room
- Technical documents
- Various models of components

Validation of knowledge

- Handover of certificate

Prerequisites

- Trainees must be over 18 years old
- Trainees have to bring their PPE

Duration

- 5 days
- Monday 12:30 pm to Friday 11:30 am

Number of participants

- 6 participants

Dates

- On request

Cost

- Training fee 1.990€

Aim of training course

Designed as a guideline through the technology of GMK cranes. The student will gain a deeper knowledge of the electric and hydraulic system of the crane and get instructions for logic troubleshooting of these systems.

Program

- Overview of the electrical function groups, navigating through the electrical schematics (ELAN and SEE), connections between electric, hydraulic and pneumatic schematics, tasks of troubleshooting in electrical systems.
- Overview of hydraulic components and their schematic symbols. Navigation through the hydraulic schematics. Overview of the carrier hydraulic and pneumatic systems. Overview of the superstructure hydraulic system.

Teaching methods

- 5 days theory and practice in electrical and hydraulic schematics and systems



Equipment

- Training room
- Technical documents
- Simulator
- GMK crane

Validation of knowledge

- Final test at the end of the training course
- Handover of certificate

Prerequisites

- Trainees must be over 18 years old
- Trainees have to bring their PPE

Duration

- 5 days
- Monday 12:30 pm to Friday 11:30 am

Number of participants

- 6 participants

Dates

- 15.01.2024 – 19.01.2024
- 08.04.2024 – 12.04.2024
- 29.07.2024 – 02.08.2024
- 11.11.2024 – 15.11.2024
- More dates on request

Cost

- Training fee 1.990 €

Aim of training course

Introduction to the ECOS (Electronic Crane Operation System), EKS (RCL system) of the GMK crane.

Program

ECOS / EKS

- History of crane control & RCL systems
- Sensors and actuators in the hydraulic system
- ESX modules, I/O boards / GVIOM, displays, MMI & level sensor, AMG / AMM, joystick, precision length sensor
- ECOS and EKS diagnostic with software tools
- CAN-Bus systems
- Introduction of logical troubleshooting and error code diagnostics

Teaching methods

- Pretest
- Detailed theory
- Simulator

Prerequisites

- Trainees must be over 18 years old
- Trainees have to bring their PPE
- Trainees must have a minimum of 6 months experience of crane operation

✓ GMK 2.1 C

Duration

- 5 days
- Monday 12:30 pm to Friday 11:30 am

Number of participants

- 6 participants



Equipment

- Training room
- Technical documents
- Simulator
- GMK crane

Validation of knowledge

- Final test at the end of the training course
- Handover of certificate

Dates

- 12.02.2024 – 16.02.2024
- 22.04.2024 – 26.04.2024
- 05.08.2024 – 09.08.2024
- 18.11.2024 – 22.11.2024
- More dates on request

Cost

- Training fee 1.990 €

Aim of training course

This course will show the technology (design and function) and the diagnostic troubleshooting of CCS "Crane Control System". This training shows the detailed theory of the operating system and its control application for particular functions and in the practical part the logical troubleshooting with the help of service software.

Program

- CCS modules, display, joysticks, jog dial, HMI, level sensor, precision length sensor
- Digital outputs, PWM outputs
- Digital and analog inputs
- CAN-Bus systems
- Sensors and actuators
- Introduction of logical troubleshooting and error code diagnostics
- Diagnostics of inputs and outputs with service software or via CCS display

Teaching methods

- Theoretical training
- Practical tasks on simulator and crane

Prerequisites

- Trainees must be over 18 years old
- Trainees have to bring their PPE
- Laptop
- Successfully passed
- ✓ GMK 2.1C & GMK 3.1C

Duration

- 5 days
- Monday 12:30 pm to Friday 11:30 am

Number of participants

- 6 participants



Equipment

- Training room
- Technical documents
- PC with service software
- Simulator
- GMK crane

Validation of knowledge

- Final test at the end of the training course
- Handover of certificate

Dates

- 26.02.2024 – 01.03.2024
- 27.05.2024 – 31.05.2024
- 26.08.2024 – 30.08.2024
- 04.11.2024 – 08.11.2024
- More dates on request

Cost

- Training fee 1.990€

Technician Development 2024

Course	Page	Course name
GMK 1.1	17	GMK Technical Introduction
GMK 2.1	18	GMK Electric & Hydraulic
GMK 3.1	19	GMK ECOS Technology & Diagnostics
GMK 4.1	20	GMK EKS 4 & 5 Technology & Diagnostics
GMK 5.1	21	GMK CCS Technology & Diagnostics
GMK 6.1	22	GMK Engines & Transmissions MB/MTU
GMK 7.1	23	GMK Steer by Wire systems – MTW SBW & ME
GMK 8.1	24	GMK 6400-1 Technology and Diagnostics
GMK TC	25	GMK Technician Certification



Aim of training course

This course provides an initial overview of the GMK types and the technology of these cranes.

You will get basic information about the drive and power train of the carrier, the operation of the MegaTrak system and the different steering systems. As you progress, you will learn about the various components of the superstructure such as the drive, boom, telescoping systems and jibs.

The both chapters of crane controls and load moment limitation will also be explained. All components are shown by means of models and graphics and are demonstrated directly on the cranes during the factory tour.

Program

- GMK crane types
- Driveline, suspension and steering
- Boom and superstructure technology
- RCL system from past to present
- Control systems from past to present

Teaching methods

- Detailed theoretical training
- Models, factory tour



Equipment

- Training room
- Technical documents
- Various models of components

Validation of knowledge

- Handover of certificate

Prerequisites

- Trainees must be over 18 years old
- Trainees have to bring their PPE

Duration

- 5 days
- Monday 12:30 pm to Friday 11:30 am

Number of participants

- 6 participants

Dates

- On request

Cost

- Training fee 1.990€

Aim of training course

Designed as a guideline through the technology of GMK cranes. The student will gain a deeper knowledge of the electric and hydraulic system of the crane and get instructions for logic troubleshooting of this systems.

Program

- Overview of the electrical function groups, navigating through the electrical schematics (ELAN and SEE), connections between electric, hydraulic and pneumatic schematics, tasks of troubleshooting in electrical systems.
- Overview of hydraulic components and their schematic symbols. Navigation through the hydraulic schematics.
- Overview of the carrier hydraulic and pneumatic systems. Overview of the superstructure hydraulic system.

Teaching methods

- 5 days theory and practice in electrical and hydraulic schematics and systems



Equipment

- Training room
- Technical documents
- Simulator
- GMK crane

Validation of knowledge

- Final test at the end of the training course
- Handover of certificate

Prerequisites

- Trainees must be over 18 years old
- Trainees have to bring their PPE

Duration

- 5 days
- Monday 12:30 pm to Friday 11:30 am

Number of participants

- 6 participants

Dates

- 15.01.2024 – 19.01.2024
- 26.02.2024 – 01.03.2024
- 08.04.2024 – 12.04.2024
- 29.07.2024 – 02.08.2024
- 11.11.2024 – 15.11.2024
- More dates on request

Cost

- Training fee 1.990€

Aim of training course

This course will show the technology (design and function) and the diagnostic (troubleshooting, adjustment, flashing) of ECOS "Electronic Crane Operating System". This training shows the detailed theory of the operating system and its control application for particular functions and in the practical part the logical trouble-shooting with help of the service SW for adjustment, flashing and configuring.

Program

- ESX modules, I/O boards, GVIOM, display, HMI, AMG/AMM, joysticks, level sensor, precision length sensor
- Digital outputs, PWM outputs
- Digital and analog inputs
- CAN-Bus systems
- Sensors and actuators
- Introduction of logical troubleshooting and error code diagnostics
- Adjustment of inputs and outputs with service software
- Flashing / updating of displays and ESX

Teaching methods

- Theoretical training
- Practical tasks on simulator and crane

Prerequisites

- Trainees must be over 18 years old
- Trainees have to bring their PPE
- Laptop with RS232 serial port or USB to serial converter
- Successfully passed

✓ **GMK 2.1**

Duration

- 5 days
- Monday 12:30 pm to Friday 11:30 am

Number of participants

- 6 participants



Equipment

- Training room
- Technical documents
- PC with service software
- Simulator
- GMK crane

Validation of knowledge

- Final test at the end of the training course
- Handover of certificate

Dates

- 12.02.2024 – 16.02.2024
- 04.03.2024 – 08.03.2024
- 22.04.2024 – 26.04.2024
- 10.06.2024 – 14.06.2024
- 05.08.2024 – 09.08.2024
- 18.11.2024 – 22.11.2024
- More dates on request

Cost

- Training fee 1.990€

Aim of training course

This training will show the RCL systems EKS4 and EKS5, the principles and technology.

In this training course the participants will attain the diagnostic level of EKS4 and EKS5.

Program

- History of EKS systems
- Crane physics, RCL technology
- EKS4 & EKS5, bus node cards, Tilt I/O boards, pressure transducers, slewing sensors, standard display / graphic display
- CAN-Bus system for sensors
- Communication to ECOS
- Error codes diagnostics & diagnostic tools
- Addressing of sensors and Tilt I/O boards
- Flashing of graphic display, flashing of EKS5
- Adjustment of RCL system with service software

Teaching methods

- Detailed theoretical training
- Practical tasks on simulator

Prerequisites

- Trainees must be over 18 years old
- Trainees have to bring their PPE
- Laptop with RS232 serial port or USB to serial converter
- Successfully passed

✓ GMK 2.1 & GMK 3.1

Duration

- 5 days
- Monday 12:30 pm to Friday 11:30 am

Number of participants

- 6 participants



Equipment

- Training room
- Technical documents
- PC with service software
- Simulator

Validation of knowledge

- Final test at the end of the training course
- Handover of certificate

Dates

- 12.02.2024 – 16.02.2024
- 18.03.2024 – 22.03.2024
- 08.04.2024 – 12.04.2024
- 01.07.2024 – 05.07.2024
- 19.08.2024 – 23.08.2024
- 02.12.2024 – 06.12.2024
- More dates on request

Cost

- Training fee 1.990€

Aim of training course

This course will show the technology (design and function) and the diagnostic (troubleshooting, adjustment, flashing) of CCS "Crane Control System". This training shows the detailed theory of the operating system and its control application for particular functions and in the practical part the logical trouble shooting with the help of service software for calibrations, flashing and configuring.

Program

- CCS modules, display, joysticks, jog dial, HMI, level sensor, precision length sensor
- Digital outputs, PWM outputs
- Digital and analog inputs
- CAN-Bus systems
- Sensors and actuators
- Introduction of logical troubleshooting and error code diagnostics
- Adjustment of inputs and outputs with service software or via CCS display
- Flashing / updating of CCS modules and displays
- GroveConnect (Telematic system)

Teaching methods

- Theoretical training
- Practical tasks on simulator and crane

Prerequisites

- Trainees must be over 18 years old
- Trainees have to bring their PPE
- Laptop
- Successfully passed
- ✓ GMK 2.1 - GMK 4.1

Duration

- 5 days
- Monday 12:30 pm to Friday 11:30 am

Number of participants

- 6 participants



Equipment

- Training room
- Technical documents
- PC with service software
- Simulator
- GMK crane

Validation of knowledge

- Final test at the end of the training course
- Handover of certificate

Dates

- 22.01.2024 – 26.01.2024
- 26.02.2024 – 01.03.2024
- 15.04.2024 – 19.04.2024
- 27.05.2024 – 31.05.2024
- 26.08.2024 – 30.08.2024
- 04.11.2024 – 08.11.2024
- More dates on request

Cost

- Training fee 1.990€

Aim of training course

In this course you will attain the technology of the current MB/MTU engines including exhaust after treatment systems. The MB gearbox G280-16 is also explained.

The electronic brake system EBS is another part of this course. Finally, the network of all electronic modules (driveline and cabin) will be diagnosed and parameterized with the XENTRY tool.



Program

- Current engines (OM47x and OM936)
- Exhaust after treatment systems
- Gearbox G280-16
- Retarder & VIAB
- ECU network system / cabin systems
- XENTRY diagnostic tool

Teaching methods

- Detailed theoretical training
- Practical tasks on crane

Equipment

- Training room
- Technical documents
- Simulator
- GMK crane
- XENTRY

Validation of knowledge

- Final test at the end of the training course
- Handover of certificate

Prerequisites

- Trainees must be over 18 years old
- Trainees have to bring their PPE
- Laptop with XENTRY
- Successfully passed

✓ GMK 2.1 - GMK 5.1

Duration

- 5 days
- Monday 12:30 pm to Friday 11:30 am

Number of participants

- 6 participants

Dates

- 15.01.2024 – 19.01.2024
- 11.03.2024 – 15.03.2024
- 24.06.2024 – 28.06.2024
- 05.08.2024 – 09.08.2024
- 09.09.2024 – 13.09.2024
- 14.10.2024 – 18.10.2024
- More dates on request

Cost

- Training fee 1.990€

Aim of training course

The "Steer by Wire" course will provide detailed knowledge of this specific system.

Due to legal regulations work and/or repair on SBW systems is only authorized to those, who have successfully completed this course.

Program

- Steer by Wire control units ESX 4 and 5
- Mobil Elektronik SLC's
- Introduction of sensors
- Laptop computer as a service tool with applied Steer by Wire – software
- Flashing of units
- Calibration and adjustment of the MTW and Mobil Elektronik SBW system
- Logical troubleshooting
- Error codes diagnostics and diagnostic tools

Teaching methods

- Detailed theoretical training
- Practical tasks on simulator
- Practical tasks on crane

Prerequisites

- **Manitowoc/Dealer Technician ONLY**
- Trainees must be over 18 years old
- Trainees have to bring their PPE
- Laptop with RS232 serial port or USB to serial converter
- Successfully passed
- ✓ **GMK 2.1 - GMK 6.1**

Duration

- 5 days
- Monday 12:30 pm to Friday 11:30 am

Number of participants

- 6 participants



Equipment

- Training room
- Technical documents
- Simulator
- GMK crane

Validation of knowledge

- Final test at the end of the training course
- Handover of certificate

Dates

- 19.02.2024 – 23.02.2024
- 18.03.2024 – 22.03.2024
- 01.07.2024 – 05.07.2024
- 12.08.2024 – 16.08.2024
- 16.09.2024 - 20.09.2024
- 18.11.2024 – 22.11.2024
- More dates on request

Cost

- Training fee 1.990€

Aim of training course

Introduction of the all new GMK6400-1.
Introduction of the next generation CCS system including new RCL sensors.
Introduction of the new powertrain and MegaDrive control system.

Program

- Next generation CCS and RCL sensors
- Adjustment of crane via CCS screens
- Next generation of Mobil Elektronik SBW
- New functions and equipment
- Explanation of MegaDrive
- MegaWingLift technology of GMK6400-1
- On-Board diagnostics

Teaching methods

- Detailed theoretical training
- Practical tasks on crane



Equipment

- Training room
- Technical documents
- GMK 6400-1

Validation of knowledge

- Final test at the end of the training course
- Handover of certificate

Prerequisites

- **Manitowoc/Dealer Technician ONLY**
- Trainees must be over 18 years old
- Trainees have to bring their PPE
- Successfully passed
- ✓ **GMK 2.1 - GMK 7.1**

Duration

- 5 days
- Monday 12:30 pm to Friday 11:30 am

Number of participants

- 6 participants

Dates

- 22.01.2024 – 26.01.2024
- 19.02.2024 – 23.02.2024
- 27.05.2024 – 31.05.2024
- 05.08.2024 – 09.08.2024
- 21.10.2024 – 25.10.2024
- 04.11.2024 – 08.11.2024
- More dates on request

Cost

- Training fee 1.990€

Aim of training course

Test of qualifications.

Program

- Entry test
- Handling of documents and service software tools
- Examination about procedures and faults on
 - ECOS
 - EKS
 - CCS
 - SBW ECOS
 - SBW Mobil Elektronik

Teaching methods

- Practical tasks on simulator
- Practical tasks on crane



Equipment

- Training room
- Simulator
- GMK crane

Validation of knowledge

- Certification Card

Prerequisites

- **Manitowoc/Dealer Technician ONLY**
- Trainees must be over 18 years old
- Trainees have to bring their PPE
- Successfully passed
- ✓ Technician Development Program 2024

Duration

- 3 days
- 08:00 am to 16:00 pm

Number of participants

- 4 participants

Dates

- 03.06.2024 – 05.06.2024
- 12.08.2024 – 14.08.2024
- 11.11.2024 – 13.11.2024
- More dates on request

Cost

- Training fee 1.100€

Technician Development 2024

Minimum requirements to certification

TDP 2024	Manitowoc or Dealer Technician ONLY	Laptop	Rates/ net EURO
GMK 1.1	GMK Technical Introduction	no	1.990
GMK 2.1	GMK Electric & Hydraulics	no	1.990
GMK 3.1	GMK ECOS Technology & Diagnostics	required	1.990
GMK 4.1	GMK EKS 4 + 5 Technology & Diagnostics	required	1.990
GMK 5.1	GMK CCS Technology & Diagnostics	required	1.990
GMK 6.1	GMK MTU/MB Engines & Transmissions, MB cabin systems	required	1.990
GMK 7.1	GMK Steer by Wire and Mobil Elektronik	required	1.990
GMK 8.1	6400-1 Technology and Diagnostics	required	1.990
TC	GMK Technician Certification	required	1.100
Total			17.020

Certified Technician Development 2024

Renews expired certification

Course	Page	Course name
GMK 6.2	28	Cummins, ZF, TraXon, Allison Techn. & Diagn.
GMK 8.1	29	GMK6400-1 Technology and Diagnostic
GMK 9.1	30	GMK - Crane Setup Course
GMK 9.2	31	GMK - Update incl. GMK4070L

Aim of training course

Technology and diagnostic of the Cummins engine QSL 9 in TIER3, TIER4final and EUROMOT5 emission standards by using "Cummins INSITE" software tool.

Introduction of ZF TraXon transmission. During this training, the use of the test tools and error codes will be explained including read out of values, errors and conditions.

Overview of the Allison 4000 family

Program

- Cummins QSL9 engine
- Exhaust after treatment systems
- ZF TraXon gearbox
- Connection of engines and transmission to CCS
- Allison 4000 family transmission

Teaching methods

- Detailed theoretical training
- Practical tasks on crane

Prerequisites

- **Manitowoc/Dealer Technician ONLY**
- Trainees must be over 18 years old
- Trainees have to bring their PPE
- Successfully passed
- ✓ GMK Certified Technician
- ✓ Laptop required

Duration

- 5 days
- Monday 12:30 pm to Friday 11:30 am

Number of participants

- 6 participants



Equipment

- Training room
- Technical documents
- GMK crane

Validation of knowledge

- Final test at the end of the training course
- Handover of certificate

Dates

- 04.03.2024 – 08.03.2024
- 13.05.2024 – 17.05.2024
- 22.06.2024 – 26.06.2024
- 07.10.2024 – 11.10.2024
- 09.12.2024 – 13.12.2024
- More dates on request

Cost

- Training fee 1.990€

Aim of training course

Introduction of the all new GMK6400-1.
Introduction of the next generation CCS system including new RCL sensors.
Introduction of the new powertrain and MegaDrive control system.

Program

- Next generation CCS and RCL sensors
- Adjustment of crane via CCS screens
- Next generation of MobilElektronik SBW
- New functions and equipment
- Explanation of MegaDrive
- MegaWingLift technology of GMK6400-1

Teaching methods

- Detailed theoretical training
- Practical tasks on crane



Equipment

- Training room
- Technical documents
- GMK6400-1

Validation of knowledge

- Final test at the end of the training course
- Handover of certificate

Prerequisites

- **Manitowoc/Dealer Technician ONLY**
- Trainees must be over 18 years old
- Trainees have to bring their PPE
- Successfully passed
- ✓ GMK Certified Technician
- ✓ Laptop required

Duration

- 5 days
- Monday 12:30 pm to Friday 11:30 am

Number of participants

- 6 participants

Dates

- 22.01.2024 – 26.01.2024
- 19.02.2024 – 23.02.2024
- 27.05.2024 – 31.05.2024
- 05.08.2024 – 09.08.2024
- 21.10.2024 – 25.10.2024
- 04.11.2024 – 08.11.2024
- More dates on request

Cost

- Training fee 1.990€

Aim of training course

The participant will get experience in calibration of the hydraulic system and the CCS

Provide professionalism in troubleshooting

Experiences to update the different control units of the crane

Program

- Complete setup of the following systems on a GMK crane
 - Hydraulic setup
 - CCS setup
 - Crane adjustment
 - SBW ECOS or SBW Mobil Elektronik

Teaching methods

- Practical tasks on crane



Equipment

- GMK crane

Validation of knowledge

- Handover of certificate
- This course renews also your expired certification card

Prerequisites

- **Manitowoc/Dealer Technician ONLY**
- Trainees must be over 18 years old
- Trainees have to bring their PPE
- Successfully passed
- ✓ GMK Technician Certification
- ✓ Present their own diagnostic equipment

Duration

- 5 days
- Monday 12:30 pm to Friday 11:30 am

Number of participants

- 2 participants

Dates

- 04.03.2024 – 08.03.2024
- 15.04.2024 – 19.04.2024
- 17.06.2024 – 21.06.2024
- 29.07.2024 – 02.08.2024
- 07.10.2024 – 11.10.2024
- More dates on request

Cost

- Training fee 2.100 €

Aim of training course

The course will provide a general update of new features on GMK cranes.

Additionally, you will get the introduction of the all new GMK4070L including new gearbox and retarder, as well as the new steering system.

Program

- New Daimler cabin control system (ASAM)
- Update on Grove Connect
- General engine update (Stage 5)
- Changes in telescope pinning systems
- Power board superstructure cabin
- Changes in software download portal
- Specification GMK4070L
- Powertrain engine and transmission G230-12
- Hydraulic system carrier and superstructure
- New steer-by-wire system from ME
- CCS Control system

Teaching methods

- Theoretical training
- Practical tasks on simulator and crane

Prerequisites

- **Manitowoc/Dealer Technician ONLY**
- Trainees must be over 18 years old
- Trainees have to bring their PPE
- Successfully passed
- ✓ GMK Technician Certification
- ✓ Laptop required

Duration

- 5 days
- Monday 12:30 pm to Friday 11:30 am

Number of participants

- 6 participants



Equipment

- GMK crane

Validation of knowledge

- Handover of certificate
- This course renews also your expired certification card

Dates

- 04.03.2024 – 08.03.2024
- 15.04.2024 – 19.04.2024
- 17.06.2024 – 21.06.2024
- 29.07.2024 – 02.08.2024
- 07.10.2024 – 11.10.2024
- More dates on request

Cost

- Training fee 1.990 €

CERTIFIED TECHNICIAN DEVELOPMENT 2024

Requirement to validity extension of certification *

TDP 2024	Manitowoc or Dealer Technician ONLY	Laptop	Rates/ net EURO
GMK 6.2	Cummins, ZF and Allison Technology and Diagnostics	required	1.990
GMK 8.1	GMK6400-1 Technology and Diagnostics	required	1.990
GMK 9.1	GMK Setup Course	required	2.100
GMK 9.2	GMK Update incl. GMK4070L	required	1.990

Legacy course 2024

Course	Page	Course name
GMK 3.3	34	GMK ECOS EST control system



Aim of training course

This course will show the technology (design and function) and the diagnostic (troubleshooting, adjustment) of ECOS "Electronic Crane Operating System". This training shows the detailed theory of the operating system and its control application for particular functions and in the practical part the logical troubleshooting with the help of the service software for adjustment and configuring

Program

- EST modules, display, joysticks, precision length sensor
- Digital outputs, PWM outputs
- Digital and analog inputs
- CAN-Bus systems
- Sensors and actuators
- Introduction of logical troubleshooting an error code diagnostics
- Adjustment of inputs and outputs with service software

Teaching methods

- Theoretical training
- Practical tasks on simulator

Prerequisites

- Trainees must be over 18 years old
- Trainees have to bring their PPE
- Laptop with RS232 serial port or USB to serial converter
- Successfully passed
 - ✓ GMK 2.1 & 3.1

Duration

- 2 days
- 08:00 am to 16:00 pm

Number of participants

- 6 participants



Equipment

- Training room
- Technical documents
- PC with service software
- Simulator

Validation of knowledge

- Final test at the end of the training course
- Handover of certificate

Dates

- On request

Cost

- Training fee 1.100€

Technician Development 2024

Non GMK Training Opportunities

Course	Page	Course name
Grove RT	36	Grove Rough-terrain Introduction to CCS
MTW	37	Manitowoc Lattice Boom Crawler Crane Training



Aim of training course

This course will walk the students through overall setup and navigation of new components such as the displays and all other cabin related CCS system setup. After the system itself is thoroughly understood, students will be walked through the entire crane electrically and hydraulically with the aid of schematics.

Program

- CCS modules, display, joysticks, jog dial
- Digital and analog inputs
- CAN-Bus systems
- Sensors and actuators
- Introduction of logical troubleshooting and error code diagnostics
- Calibrations and adjustment with service software
- Flashing / updating of CCS modules and displays
- EEPROM downloads and uploads
- LMI/RCI troubleshooting

Teaching methods

- Theoretical training
- Practical tasks on simulator and crane

Prerequisites

- Trainees must be over 18 years old
- Trainees have to bring their PPE
- Laptop with RS232 serial port or USB to serial converter
- Successfully passed

✓ GMK 2.1

Duration

- 5 days
- Monday 12:30 pm to Friday 11:30 am

Number of participants

- 6 participants



Equipment

- Training room
- Technical documents
- PC with service software
- Simulator
- Grove Rough-terrain crane

Validation of knowledge

- Final test at the end of the training course
- Handover of certificate

Dates

- TBD

Location

- Manitowoc Crane Group, Niella Tanaro (CN), Italy

Cost

- Training fee 1.990€

Aim of training courses

Manitowoc lattice boom crawler crane training courses cover the fundamentals of the crawler crane control systems, onboard diagnostic usage, design and operation of various crane functions, as well as operation of the crane LMI/RCI.

The control system, functions, and attachments discussed will vary as appropriate from class to class.

Courses Available

- EPIC control system courses
- CANBUS control system courses
- CCS control system courses
- Model specific training courses

Languages Available

- English
- Portuguese
- Spanish

Teaching methods

- Theoretical training
- Practical tasks on simulator

Prerequisites for Introductory Classes

- Trainees must be over 18 years old
- Trainees have to bring their PPE
- Laptop with RS232 serial port or USB to serial converter
- Basic electrical and hydraulic knowledge
- Experience working with cranes

Duration

- 5 days
- Monday 12:30 pm to Friday 11:30 am

Number of participants

- 6 participants



Equipment

- Training room
- Technical documents
- PC with service software
- Electric and hydraulic simulator

Validation of knowledge

- Final test at the end of the training course
- Handover of certificate

Dates

- Available by request

Location Options

(not all courses can be offered at all locations)

- Porto, Portugal
- Dubai, UAE
- Shady Grove, WI, USA
- Manitowoc, WI, USA
- Sao Paulo, Brazil

Cost

- Training fee varies depending on course requested

Notes

Administration

Laptop requirements

Laptops required for GMK training courses should be configured as follows

Must be of a "PC" type. Apple/Macintosh/I-book, Linux and Android based computers are not currently compatible with any training material and/or service software.

Windows 10 is acceptable in a 32-bit or 64-bit version, any existing Microsoft Office must be installed in the 32-bit version. For older Windows versions we don't give any support.

The PC and/or username must have only Latin letters and/or numbers (ASCII codes 48-57, 65-90, 97-172). **No special characters like ä, ö, ü, ß, é, è etc. are allowed.** For PC's outside Latin characters' countries there could be some problems occur with the software tools. Here it is recommended to install the Windows as an English version and add after your local version.

It is also recommended that the laptop has the following specifications

- ✓ 1366 x 768 or higher display resolution
- ✓ x86 compatible processor
- ✓ minimum of 4GB RAM
- ✓ minimum of 150GB free HDD space
- ✓ 2 USB port type A or adapter to type A
- ✓ Integrated RS232 port or USB to RS232 adapter, configured to COM1

In addition to Windows 10, the laptop should have the following software installed

- current Adobe Reader,
- current Microsoft Access or Microsoft AccessDatabaseEngine, if MS Office is installed, it must be the **32bit** version
- 7-zip or other ZIP program,
- Media player configured to play the following types of video files and audio files
wmv, .avi, .mpeg, .mp3, etc., and Quicktime

The user should also have full "**Administrative rights**" to add/install various software programs and software drivers used during and after training, especially the folders **c:\Temp** and **c:\Manitowoc** must be accessible without any restrictions.

It is highly recommended that most of Grove/GMK service programs utilize a DB-9 serial port connection to the crane configured as "**COM1**". If the laptop does not have a DB-9 serial port the recommended alternative is a PCMCIA Adapter Serial card (DB-9), configured as **COM1**. This is preferred over a USB to serial adapter. Any serial adapters may work but are not 100% reliable to work with all Grove/GMK service programs. For a better satisfaction, we recommend serial adapter with FTDI chip set. If USB serial adapters are used, the laptop must have a minimum of two (2) standard USB A ports available or an adapter to USB type A.

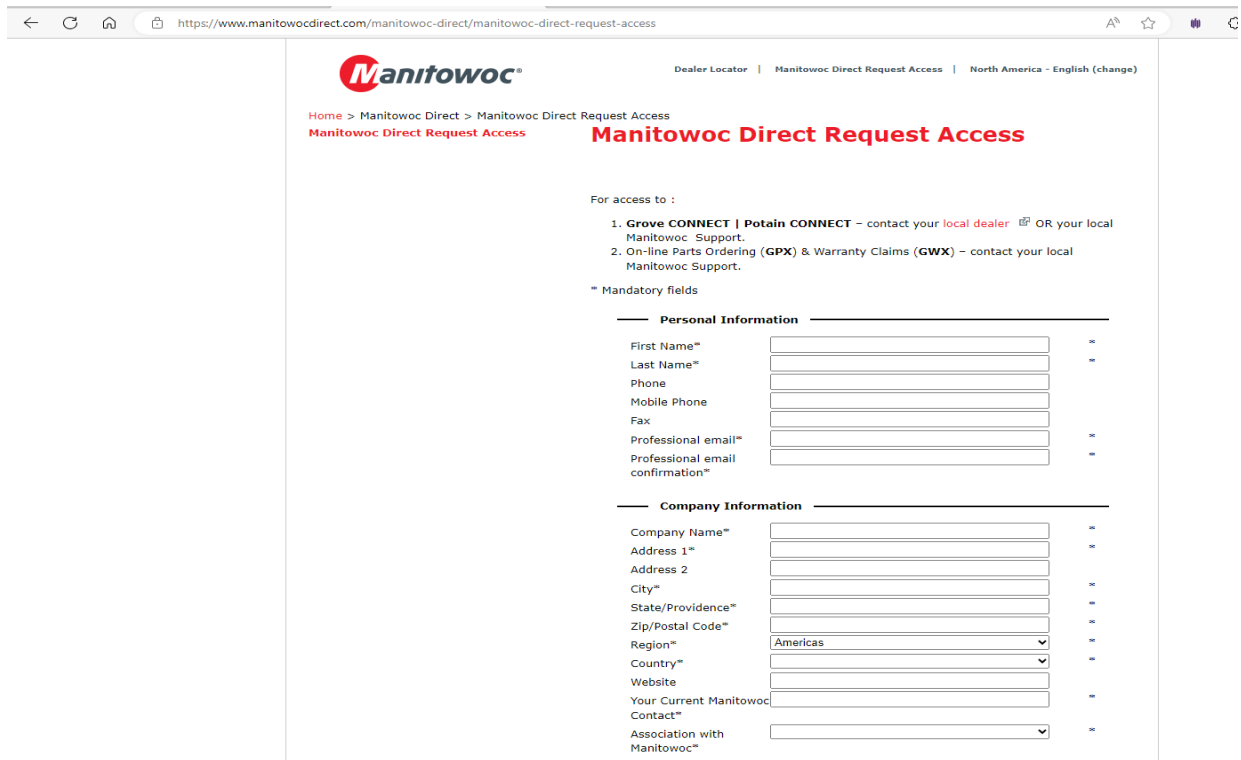
Manitowoc - Training is not responsible for providing or configuring any non-Manitowoc software and/or serial adapters of any type necessary for use with any service programs.

Manitowoc Training Center Virtual Access

What will you find...

- Selection of all training courses
- Online registration in the LMS
- Dates of the training courses
- E- Learning Modules

Request access now, see below:



The screenshot shows a web browser window with the URL <https://www.manitowocdirect.com/manitowoc-direct/manitowoc-direct-request-access>. The page features the Manitowoc logo and navigation links for Dealer Locator, Maniowoc Direct Request Access, and North America - English (change). The main heading is "Manitowoc Direct Request Access".

For access to :

1. **Grove CONNECT | Potain CONNECT** – contact your **local dealer** OR your local Manitowoc Support.
2. **On-line Parts Ordering (GPX) & Warranty Claims (GWX)** – contact your local Manitowoc Support.

* Mandatory fields

Personal Information

First Name*	<input type="text"/>	*
Last Name*	<input type="text"/>	*
Phone	<input type="text"/>	
Mobile Phone	<input type="text"/>	
Fax	<input type="text"/>	
Professional email*	<input type="text"/>	*
Professional email confirmation*	<input type="text"/>	*

Company Information

Company Name*	<input type="text"/>	*
Address 1*	<input type="text"/>	*
Address 2	<input type="text"/>	
City*	<input type="text"/>	*
State/Province*	<input type="text"/>	*
Zip/Postal Code*	<input type="text"/>	*
Region*	<input type="text" value="Americas"/>	*
Country*	<input type="text"/>	*
Website	<input type="text"/>	
Your Current Manitowoc Contact*	<input type="text"/>	*
Association with Manitowoc*	<input type="text"/>	*



Administration

Address & Location map

MANITOWOC CRANE GROUP Germany GmbH

Training Center

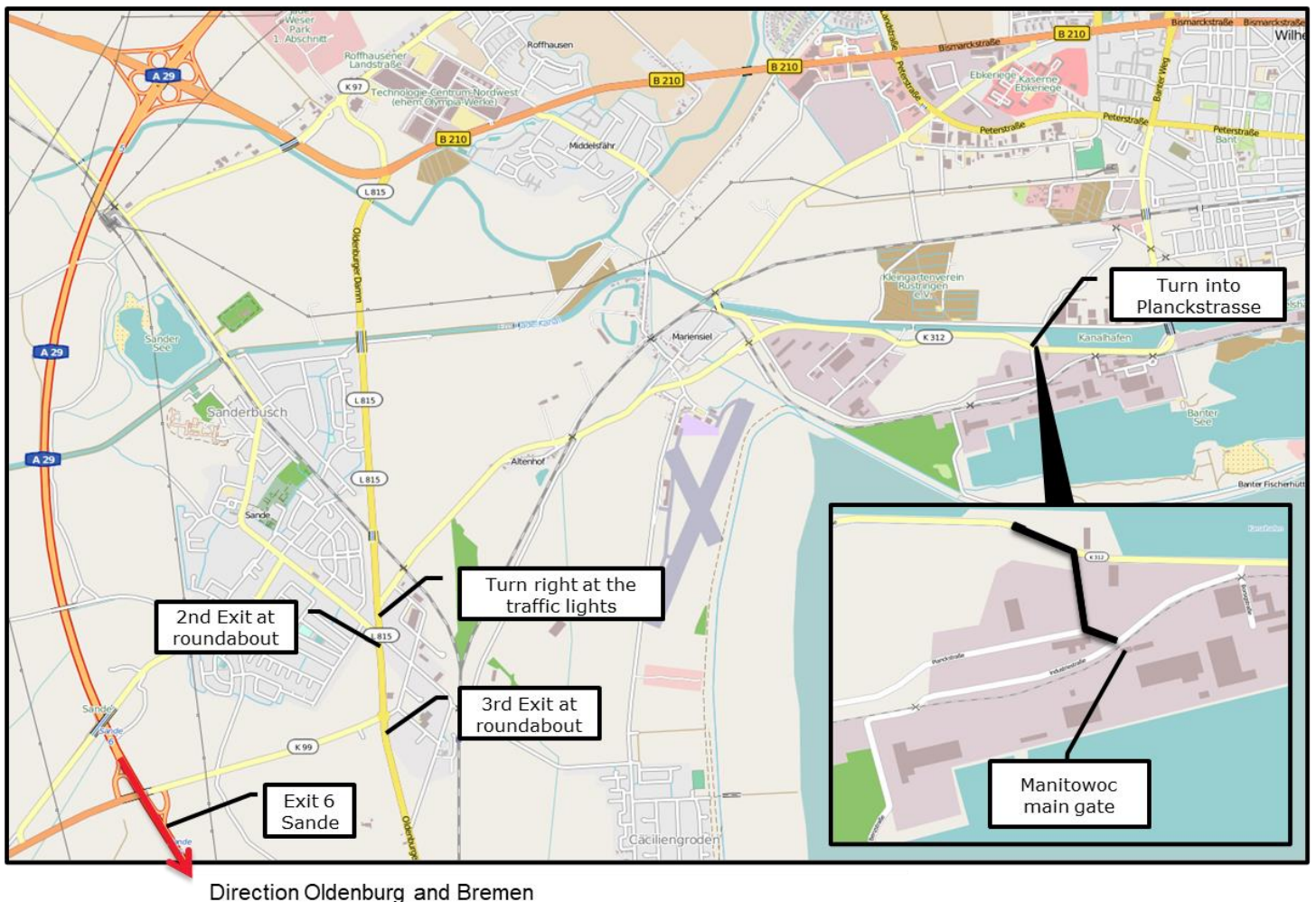
Industriegelände West

26389 Wilhelmshaven, Germany

GPS 53°30'34"N 8°4'56"E

Phone +49 (0) 4421 294 4164

E-mail TrainingGMK@manitowoc.com



Administration

Registration – Purchase order

return to
MANITOWOC CRANE GROUP Germany GmbH
GMK Training Center
Industriegelände West
26389 Wilhelmshaven
Email: TrainingGMK@manitowoc.com

Date of registration _____

Course name _____

Course date _____

Course location _____

Costs _____

Company _____

Contact _____

Address _____

Contact phone _____

Contact email _____

Purchase number _____

Participants 1. _____

2. _____

3. _____

4. _____

Hotel booking no yes

Arrival date _____ leaving date _____

Flight details Flight No. _____ Arrival _____

Transfer needed no yes Airport transfer daily from / to hotel

Remarks _____

PPE is mandatory Safety shoes, proper outfit (no shorts), gloves, helmet and goggles.

Manitowoc Training Centers

Americas

- Shady Grove, Pennsylvania, USA
- Manitowoc, Wisconsin, USA
- Monterrey, Mexico
- Sao Paulo, Brazil

Europe, Middle East, Africa

- Wilhelmshaven, Germany
- Dubai, United Arab Emirates



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.