

TRAINING CONCEPT

GROB SYSTEM SOLUTIONS

TRAINING CONCEPT



GROB customer trainings

As products become more and more complex and the competition gets tougher, the importance of customer training as a key component of the GROB global range of services is constantly growing. An experienced team of qualified trainers is squaring up to this challenge at GROB.

The GROB service range

Besides individual customer consultation and support, the GROB service range above all includes an diverse range of training and development modules.

From system operation, NC programming to preventive maintenance and inspection through to mechanical and electrical maintenance, these modules cover all there is to know about our extensive product range.

We offer various training modules for operators, programmers, installation engineers and maintenance engineers so that you get the best out of your GROB machining center. All training modules are available for SIEMENS, FANUC and BOSCH Rexroth control systems. Our small group approach means that due consideration can be given to the interests and prior knowledge of all the participants.

Depending on availability, individual training modules can be configured to suit particular needs.

All participants who successfully attend the GROB customer trainings receive a certificate.



The GROB training modules at a glance

TRAINING MODULES	
NC programming (GROB-specific programming)	<p>YOUR CONTACT</p> <p>GROB customer training Tel.: +49 8261 996-5771 Fax: +49 8261 996-959949 E-mail: Kundenschulung@grob.de www.grobgroup.com</p> <p><i>Detailed information on training enquiries and applications can be found on page 10.</i></p>
NC programming (Basic course)	
Operation	
Electrical maintenance	
Mechanical maintenance	
Motorized spindle, mechanical systems (installation and removal)	
Renishaw (perpendicularity), mechanical systems	
Tool change, mechanical systems	

GROB training modules

You will be closely acquainted with GROB machining centers through various modules. No matter whether novice or experienced machine operator – we demonstrate how the machines work to optimal effect.

NC PROGRAMMING (GROB-specific programming)	
Target group	<ul style="list-style-type: none"> • Specifically for NC programmers • Also recommended for persons who optimize process quality through program modifications
Requirement	<ul style="list-style-type: none"> • NC basic course or equivalent knowledge • Knowledge of the functioning of automated machine tools • Knowledge of handling production documentation, including drawings, bills of material, tool layouts
Duration	2 days <ul style="list-style-type: none"> • Course composition: Theory (100 %)
Contents	<ul style="list-style-type: none"> • Familiarity with the coordinate systems used by GROB • Program management system • Structure of machining programs • Machining sub-routines • Quality optimization/offset parameters • Tool correction and monitoring • Speed, feed and position parameters
Learning objective	<ul style="list-style-type: none"> • Autonomous modification to machining programs (without touch probe) • Accomplishing quality optimizations • Understanding the machine, its functions and machining programs • Localizing sources of faults • Sound knowledge of the GROB-specific NC program

NC PROGRAMMING (basic course)	
Target group	<ul style="list-style-type: none"> • Specifically for NC programmers • Also recommended for persons who are to optimize process quality through program modifications
Requirement	<ul style="list-style-type: none"> • Knowledge of the functioning of automated machine tools • Knowledge of handling production documents, including drawings, bills of material, tool layouts
Duration	1 day <ul style="list-style-type: none"> • Course composition: Theory (100 %)
Contents	<ul style="list-style-type: none"> • Safety training • Control system tasks • Explanation of terms • Basic knowledge of NC programming (G-function, M-function) • NC commands in the machine programs • NC commands in the sub-routines (executed by a machining program without touch probe)
Learning objective	<ul style="list-style-type: none"> • Understanding NC commands in the machining programs • Localizing sources of faults • Sound knowledge of the GROB-specific NC program

OPERATION	
Target group	<ul style="list-style-type: none"> • Specifically for operators • Also recommended for maintenance personnel, depending on their tasks
Requirement	<ul style="list-style-type: none"> • Knowledge of the functioning of automated machine tools • Basic course of the control system manufacturer
Duration	2 days <ul style="list-style-type: none"> • Course composition: Combination of theory (10 %) and practical exercises (90 %)
Contents	<ul style="list-style-type: none"> • Safety training • Introduction to safety technology • Configuration of the machine • Basic knowledge of machine operation • Operating modes and how they are used • Tool management system and how it is used • Detecting faults (troubleshooting) • Seating check
Learning objective	<ul style="list-style-type: none"> • Correct and safety-conscious machine operation • Minimizing machine downtimes through foresighted machine operation • Adequate knowledge of GROB system solutions

TRAINING MODULES

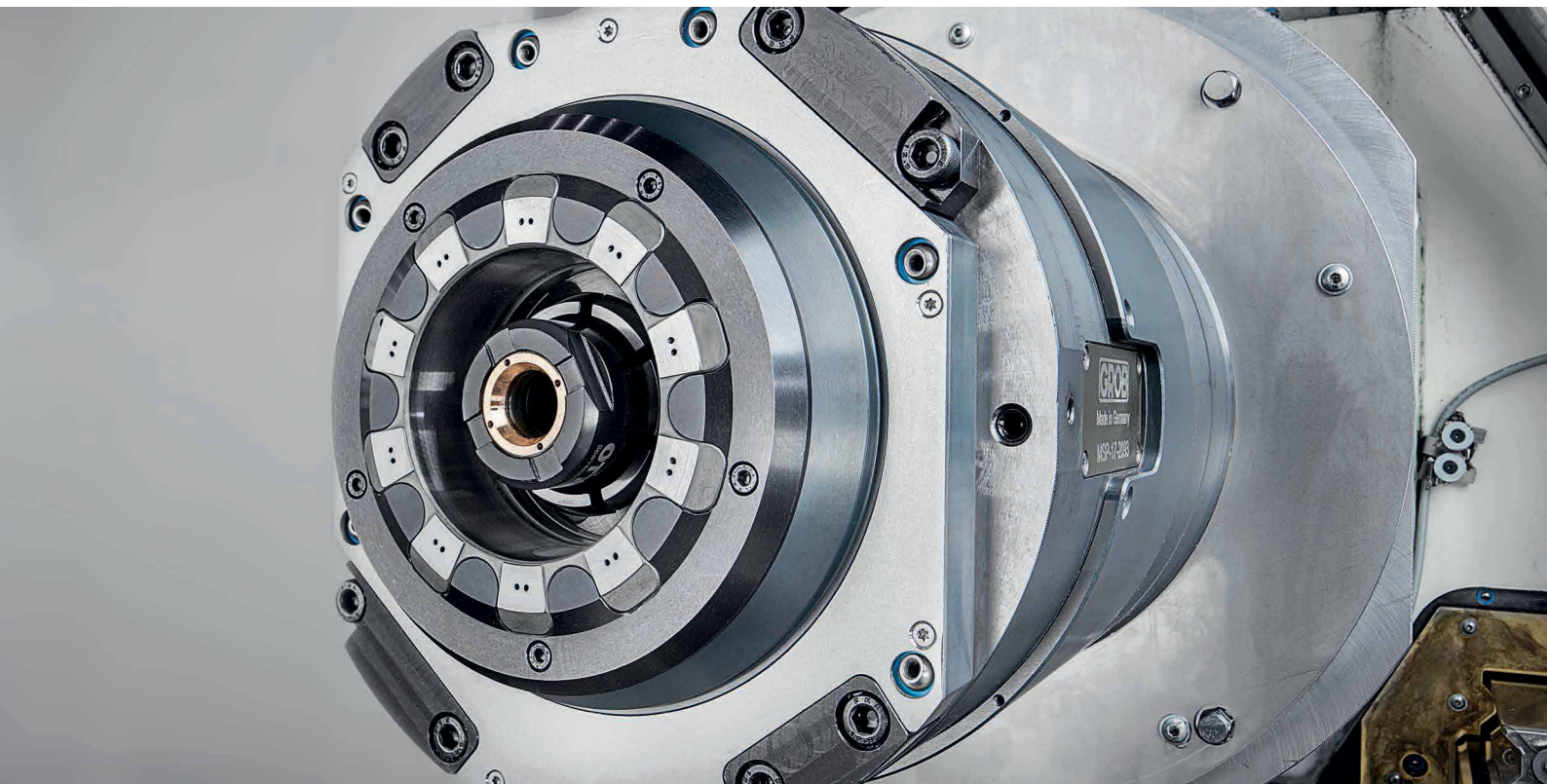


ELECTRICAL MAINTENANCE	
Target group	<ul style="list-style-type: none"> • Specifically for electronic maintenance engineers
Requirement	<ul style="list-style-type: none"> • Training on electrical or electronic systems • Basic knowledge of the drive and control technology, as well as the control system used
Duration	3 days <ul style="list-style-type: none"> • Course composition: Combination of theory (50 %) and practical exercises (50 %)
Contents	<ul style="list-style-type: none"> • Safety training • Functional description of electrical components • Data backup • Data recovery • Hardware replacement • Hardware settings • Diagnostic options • Fault analysis and the correct approach to machine malfunctions
Learning objective	<ul style="list-style-type: none"> • Minimizing machine downtimes through preventive maintenance activities • Maintenance of electrical components • Rectifying and localizing electrical faults • Creation and usage of data backup as a frame of reference



MECHANICAL MAINTENANCE	
Target group	<ul style="list-style-type: none"> • Specifically for mechanical maintenance engineers
Requirement	<ul style="list-style-type: none"> • Well-founded training on mechanical systems • Fundamental principles of hydraulic, pneumatic and lubrication systems (lubricants, lubrication diagrams) • Experience of maintaining automated machine tools • Experience of diagnosing faults and their causes
Duration	3 days <ul style="list-style-type: none"> • Course composition: Combination of theory (30 %) and practical exercises (70 %)
Contents	<ul style="list-style-type: none"> • Introduction to safety technology • Configuration of the machine (assemblies, guides, drives, measuring systems, tool magazine) • Introduction to machine documentation • Preventive maintenance and maintenance measures • Introduction to special equipment • Motorized spindle (inspection) • Machine zero points • Fluid technology
Learning objective	<ul style="list-style-type: none"> • Using the technical documentation as a frame of reference • Correcting setting reference points • Analyzing and rectifying mechanical faults • Replacing spare and wear parts • Carrying out preventive maintenance and inspection tasks • Localizing sources of faults • Carrying out repair tasks

TRAINING MODULES IN THE GROB TRAINING CENTER



MOTORIZED SPINDLE, MECHANICAL SYSTEMS (installation and removal)	
Target group	<ul style="list-style-type: none"> • Specifically for mechanical maintenance engineers
Requirement	<ul style="list-style-type: none"> • Well-founded training on mechanical systems • Fundamental principles of machine operation and geometry • Experience with machine tools
Duration	2 days <ul style="list-style-type: none"> • Course composition: Combination of theory (10 %) and practical exercises (90 %)
Contents	<ul style="list-style-type: none"> • Introduction to safety technology • Preventive maintenance and maintenance measures • Introduction to special equipment • Removal and installation of a motorized spindle using the special equipment provided • Checking perpendicularity, correcting as necessary • Spindle 0° setting • Setting the machine zero point (Z-axis)
Learning objective	<ul style="list-style-type: none"> • Using the technical documentation as a frame of reference • Carrying out preventive maintenance and inspection tasks • Correcting setting reference points • Localizing and rectifying mechanical faults • Replacing spare and wear parts • Localizing sources of faults • Carrying out repair tasks

TOOL CHANGE, MECHANICAL SYSTEMS	
Target group	<ul style="list-style-type: none"> • Specifically for mechanical maintenance engineers
Requirement	<ul style="list-style-type: none"> • Well-founded training on mechanical systems • Fundamental principles of machine operation and geometry • Experience with machine tools
Duration	3 days <ul style="list-style-type: none"> • Course composition: Combination of theory (10 %) and practical exercises (90 %)
Contents	<ul style="list-style-type: none"> • Introduction to safety technology • Tool magazine (configuration) • Configuration and installation using special equipment (positioner) • Checking and setting up the transfer position • Setting the software cams • Checking the tool change in automatic mode
Learning objective	<ul style="list-style-type: none"> • Using the technical documentation as a frame of reference • Correcting setting reference points • Localizing and rectifying mechanical faults • Accomplishing service and inspection tasks • Carrying out repair activities

RENISHAW (perpendicularity), MECHANICAL SYSTEMS	
Target group	<ul style="list-style-type: none"> • Specifically for mechanical maintenance engineers
Requirement	<ul style="list-style-type: none"> • Well-founded training on mechanical systems • Fundamental principles of machine operation and geometry • Experience with machine tools
Duration	3 days <ul style="list-style-type: none"> • Course composition: Combination of theory (10 %) and practical exercises (90 %)
Contents	<ul style="list-style-type: none"> • Introduction to safety technology • Basic knowledge of machine operation • Operating modes and how they are used • Configuration and function of Renishaw applications • Introduction to fault overviews • Evaluation of diagnostic routines and graphics • Restoring perpendicularity
Learning objective	<ul style="list-style-type: none"> • Using the technical documentation as a frame of reference • Correcting setting reference points • Localizing and rectifying mechanical faults • Carrying out preventive maintenance and inspection tasks • Carrying out repair tasks

Individual training opportunities with GROB

If you are not sure which is the best training for you, we will be happy to devise individual training concepts. We will work with you to analyze your needs and requirements. We will then develop a tailored training that fulfils your personal aspirations.

Please e-mail your written training enquiry/application to

E-mail: Kundenschulung@grob.de • Tel. +49 8261 996-5771

GENERAL INFORMATION	
Application	<p>Please provide the following information when you submit your training enquiry/application:</p> <ul style="list-style-type: none"> • Relevant training module • Number of participants, along with their first names and surnames (The maximum number of participants per course is limited to <u>five</u>, applications will therefore be considered in the order in which they are received in writing. If there are fewer than three participants, GROB reserves the right to postpone the course date, even at short notice.) • Your complete contact data (Company name, address with telephone number and e-mail address, as well as a contact for queries.) <p><i>The training application is binding only after our e-mail confirmation!</i></p>
Training dates	The duration of the courses varies. One training day usually lasts seven hours, including breaks.
Cancellation	A cancelation of the training course is free of charge, provided that the written cancelation notice arrives at GROB 14 days before the start of the course at the latest. Cancelations received after this time will attract 10 % of the course fees. If a participant fails to show or leaves the course prematurely, the full fee will be charged.
Course cancelation	If the minimum participant number of three persons is not reached, or in case of force majeure, GROB shall be entitled to change the date for the purpose of merging courses or to cancel the course. GROB shall not be liable for any further costs incurred as a result of canceled courses.
Course procedure	All courses are held at GROB in professionally-equipped training rooms.
Course materials	The course materials are protected by copyright. They must not be copied nor otherwise reproduced, either in whole or in part, without the trainer's prior consent.
Disclaimer	The information on the courses and in the associated materials is always conveyed to the best of our knowledge. GROB does not accept any liability for discrepancies or errors. The written information in particular does not constitute any assurance of quality or the equipment variants of the sold machines.
Accommodation during the courses	The participants must arrange their own accommodation. We will of course assist you with your search for overnight accommodation.
Safety	The training participants are under an obligation to observe and comply with the security regulations applicable on GROB company premises. Specifically, the participants are obliged to wear safety footwear. Please bring safety footwear with you to the training course.
Costs	We will happily provide you will all costs upon request. Generally speaking, the costs are calculated per training day and participant.
Meals	On each training day, each participant receives lunch free-of-charge in the GROB company restaurant.



THE GROB GROUP

Tradition – Know-how spanning generations

The story of GROB-WERKE began back in 1926 when Dr. Ernst Grob founded Ernst Grob Werkzeug- und Maschinenfabrik. As a global, family-owned company that develops and manufactures systems and machine tools, the heart of GROB-WERKE has been beating since 1968 in Mindelheim, Bavaria.

We are represented around the globe with our production facilities in Bluffton (Ohio, USA), São Paulo (Brazil) and Dalian (China), as well as our worldwide service and sales branches.

Decades of experience, excellent quality and reliability in terms of design and delivery guarantee GROB customers optimal support for all matters concerning the automotive business and universal machines.

GROB product range

SYSTEM SOLUTIONS

- G-modules
- Modular special-purpose machines
- Automation
- Transport systems
- Turn-key systems (turn-key projects)
- GROB thermal spraying system
- Electromobility
- Machining centers for frame structure parts

UNIVERSAL MACHINING CENTERS

- 5-axis universal milling machining centers
- 5-axis universal mill-turn machining centers
- Large universal machining centers

ASSEMBLY LINES

- Customer-specific assembly systems
- Individual assembly units

GROB core expertise

- ⊕ At GROB, all core expertise is concentrated under one roof:
Sales • Project Management • Design • Production • Assembly • Commissioning • Customer Service
- ⊕ Clear sales structure: You have one dedicated contact person throughout the project cycle
- ⊕ Our production facility offers you optimized vertical integration, and enables us to dynamically control capacities and respond to bottle neck situations in a flexible manner
- ⊕ You can reach our Customer Service 24 hours a day



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