



NC Programming

Teaching and Learning

Basic and Advanced
Training Offers

Foreword

The solid training of skilled staff is one of the main pillars of the excellent name enjoyed by goods and products made in Germany. It stems essentially from the dual training system with its two-track system: practical professional training on the shop floor and theoretical backup in the vocational school.

However, the best possible training is only when the aspiring professionals are taught and learn in theory and practice at the level that matches the standards demanded in their later workplaces.

HEIDENHAIN offers further training, teaching materials, learning aids, and academic equipment to training

companies, vocational schools, universities of applied sciences, and universities that provide NC training in the metal sector with the main focus on milling and turning.

With this offer we want to do our part towards ensuring that the desperately needed young skilled professionals in the metal industry are given training under the best possible conditions:

- With the best qualified personnel who can competently answer all questions of theory and practice.
- With the same tools and equipment used in the vocational schools and universities of applied sciences as in the company.

The HEIDENHAIN Training Center: over 30 years of competence in basic and advanced training

Over 1000 students leave the HEIDENHAIN training centers in Traunreut and Vaihingen-Horrheim every year with qualifications in professional skills, in particular in the operating and programming of HEIDENHAIN controls. Add to this the comprehensive training in PLC programming and the commissioning and optimizing of machines.

This wealth of experience is passed on by HEIDENHAIN to apprenticeship workshops, vocational schools, universities of applied sciences, and other seats of higher education. Just as students in corporate training programs, you will be able to use the modern equipment of the

- With modern teaching materials which correspond to today's working environments and fully prepare students for the real tasks ahead.

Get in touch with us directly and benefit from our offer! We will be happy to support you and your training facility.

Best regards,
DR. JOHANNES HEIDENHAIN GmbH

training center oriented on real workshop conditions: a machine shop with the latest machines and course rooms with programming stations, exactly as we offer you for your teaching.

Our offerings

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Contact:

We will gladly answer any questions about the HEIDENHAIN Training Center specially designed for professional training facilities.

**HEIDENHAIN
Training Center
Dr.-Johannes-Heidenhain-Straße 5
83301 Traunreut, Germany**

+49 8669 31-1695
mtt@heidenhain.de



The latest information about training courses is also available here:
<https://www.klartext-portal.com/en/training/training-worldwide/>



Quality through qualification

Advanced training for practice-oriented teaching: special HEIDENHAIN courses

Specialist qualifications and advanced training are indispensable in today's professional world. For this purpose, HEIDENHAIN offers you a specially optimized training course for teachers and instructors: "Fundamentals of iTNC 530 Klartext conversational programming."

The fundamentals course gives you practice-oriented, efficient, and applied specialist knowledge of the fundamental functions of TNC controls. You get to know the TNC functions from numerous programming examples. Practical exercises reinforce the knowledge gained. This includes testing the functions learned and the programs created directly on modern CNC machines in the machine hall of the HEIDENHAIN Training Center. All the course documentation that you receive in this basic course is also available from HEIDENHAIN free of charge as a PDF. You can use excerpts or the complete documentation for your classes.



Fundamentals of iTNC 530 Klartext conversational programming for teachers/instructors

Course contents

Fundamental knowledge

- File management
- Tool table
- Data transfer

Path functions

- Cartesian coordinates
- Polar coordinates

Cycles

- Drilling cycles
- Cycles for milling pockets, studs, and slots
- Cycles for machining point patterns
- SL cycles
- Cycles for coordinate transformation

Programming techniques

- Program-section repeats
- Subprogramming
- Nesting

Requirements

- Knowledge of milling according to a drawing
- CNC fundamentals

Target group

- Company trainers
- Teachers in vocational schools and colleges

Objectives of the course

You can create and test programs from workpiece drawings with HEIDENHAIN Klartext conversational programming.

Teaching materials

The course participants will receive documentation which they can then use in their own CNC classes.

Duration

4½ days,
Monday 8:00 AM - Friday 12:00 PM



www.klartext-portal.de/de_DE/schulung/schulungen-in-deutschland/detailseite/seminare/334/

Not only, but also for training

Naturally you are interested not only in the iTNC 530 fundamentals training course for teachers and instructors. After all, there are also other HEIDENHAIN controls which are relevant for the training program. Or maybe you would like to build on your knowledge from the fundamentals course with an advanced training course or go even further with a special training course.

After consulting HEIDENHAIN you can book the following courses with special conditions for training and teaching staff.

Fundamentals courses

- TNC 320/TNC 620/TNC 640 Klartext conversational programming
- iTNC 530 Klartext conversational programming
- MANUALplus 620
- CNC PILOT 640

Advanced courses

- Klartext conversational programming for TNC

If you are interested in a course from our program beyond this—for example, a special course or user workshop—then please get in touch with us. All the contact details are given below in the infobox.

On agreement we also offer training courses on-site or at a teaching facility in your neighborhood. Information is likewise available via the telephone hotline indicated below or by e-mail.



Information sources

An up-to-date overview of the HEIDENHAIN training program and detailed information about training course contents and dates are always available on the Internet by going to:



<https://www.klartext-portal.com/en/training/training-worldwide/>

Here you can also apply directly for a training course. When applying, please enter *FöPS* in the "Message" field.

We will gladly answer any questions you have about the training courses:

+49 8669 31-1695
mtt@heidenhain.de

Quality through qualification

HEIDENHAIN Services help ensure that your classes run smoothly

Advice and assistance from experts: the HEIDENHAIN helplines

Problems with the HEIDENHAIN controls and programming stations you are using in your classes or training courses? In-depth questions about programming HEIDENHAIN controls which you cannot answer? Questions about measuring systems? No problem! Just call the HEIDENHAIN helplines!

Competent experts will be ready to field all your technical questions about HEIDENHAIN products. The control specialists are sitting directly at the programming stations with operating panels. In this way they can reproduce your problems directly, precisely follow your operations, and clearly explain the appropriate solutions.



On-site service for installation

We offer an on-site service to ensure that your HEIDENHAIN programming stations and machine tools with HEIDENHAIN controls work perfectly and are optimally adjusted to your requirements for teaching

and training. The service supports you when installing your equipment and provides tips and tricks for the competent and easily comprehensible teaching of your trainees.

Information sources

HEIDENHAIN technical helplines

NC programming

- For all questions about programming and operating our TNC controls:
☎ +49 8669 31-3103
service.nc-pgm@heidenhain.de

NC support

- For all questions about the hardware of our TNC controls:
☎ +49 8669 31-3101
service.nc-support@heidenhain.de

PLC programming for TNC

- For all questions about adapting control functions to individual machine parameters:
☎ +49 8669 31-3102
service.plc@heidenhain.de

Measuring systems/machine calibration

- For all questions about using our measuring systems and machine calibration:
☎ +49 8669 31-3104
service.ms-support@heidenhain.de

HEIDENHAIN commercial helpline

- For all questions about repairs, spare parts, replacement systems, and complaints:
☎ +49 8669 31-3121
service.order@heidenhain.de

Quality through qualification

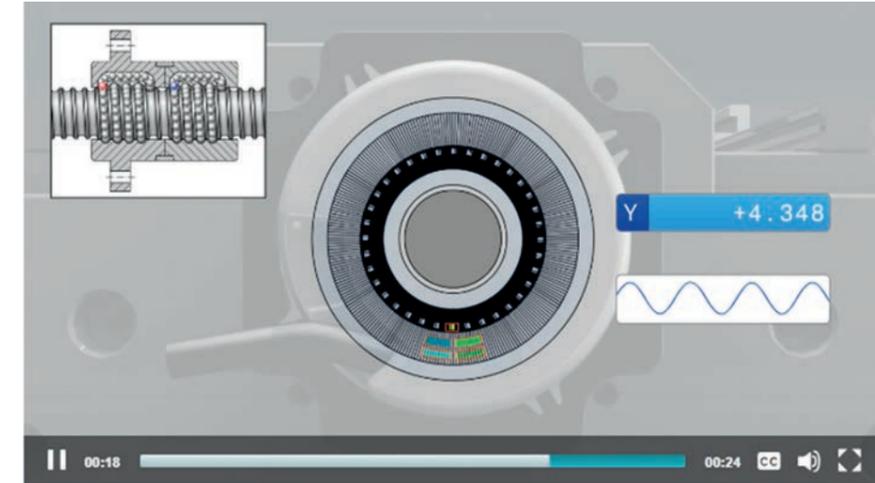
Keep on the ball with online offers from HEIDENHAIN

Webinars for learning and teaching

Our webinars provide you as teachers the capability to learn about new functions and deepen your knowledge of specific topics.

The dates of the next **Live Webinars** are published on the Industry Arena home page de.industryarena.com under > News > Eventkalender > Webinare.

Recorded webinars are available in the HEIDENHAIN Klartext portal, on HEIDENHAIN TV on YouTube, or in the Industry Arena. Naturally you can also use the recorded webinars in your classes.



Data collections for class preparation

On the Internet there are two absolutely essential data collections which will help you prepare your classes:

- The **NC Database** is a collection of solutions to regularly occurring problems. Here you can download NC programs and use them on your machine or programming station. The NC database also contains a special category for training workpieces.
- Our **FAQ Collection** contains answers to questions which have often been asked on our helplines. This makes the FAQ Collection an interesting tool in two ways: it keeps you up to date and you can also use it as a source of questions and tasks for your trainees.

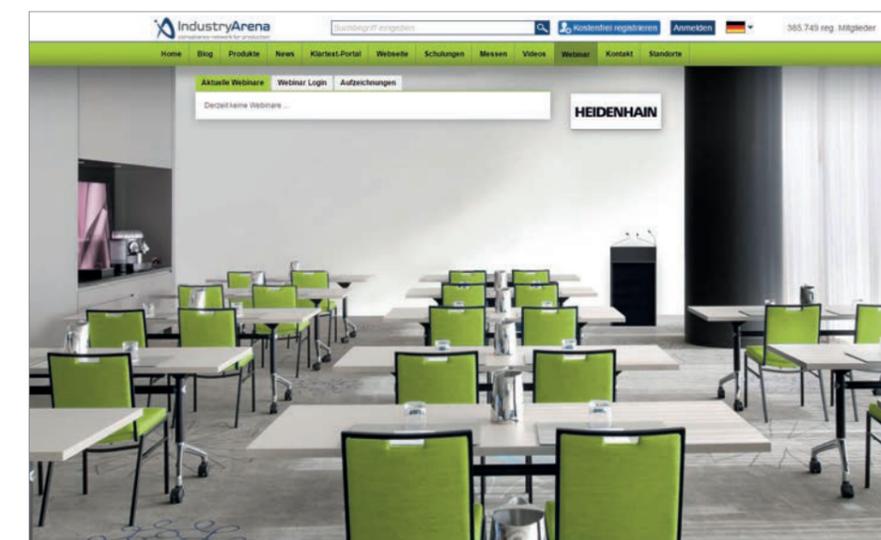
www.klartext-portal.com/en
under > **Media library** > **Webinars**



www.youtube.com/heidenhaintv



www.klartext-portal.com/en/tips/nc-solutions



Quality through qualification

Learning for a successful future: well prepared for the job

The Oskar-von-Miller vocational school in Schwandorf emphasizes a type of vocational education that provides students with an optimal career start from modern equipment and motivated teachers. Over 3,500 students are educated here every academic year in various, predominantly technical occupations.

In metal technology the school uses HEIDENHAIN equipment and for its implementation in teaching, the teachers and faculty advisors have been specially trained in the HEIDENHAIN Training Center. The enthusiasm is great on all sides: with teachers, trainees, and the training companies.

There is only very little time for NC programming; a time which the vocational school aspires to put to optimum, practice-oriented use. "This is why I have given my full backing to using HEIDENHAIN solutions in classes," explains Alois Meyer, Head of the Metal Technology Department at the Oskar-von-Miller vocational school. "I got to know about what HEIDENHAIN has to offer at an advanced teacher training course and was immediately impressed.



HEIDENHAIN provides vocational schools, apprenticeship workshops and universities of applied sciences with a truly comprehensive package from qualification of teachers to practical tools like the programming station and the HIT learning software through to support in installing hardware and software in the school."

Today, the trainees at the Oskar-von-Miller vocational school have a classroom with HEIDENHAIN programming stations that are fully integrated into the school network. This permits programs created on these programming stations to be called directly at the machine tool in the apprenticeship workshop and tested under realistic

conditions. Johann Klein, the teacher and faculty advisor for the metal workshops, emphasizes that "without the programming stations, many students would not have the opportunity to gain practical NC experience from the very beginning."

The trainees join in the enthusiasm. "In the vocational school I now have the equipment equivalent to that in my training company," says a happy student in the precision mechanics class. "My trainers told me that previously they learned programming on paper!" said a bemused fellow student.

Johann Klein can only laugh here: "Of course, writing programs on paper is inconceivable and quite ridiculous for trainees in the age of smartphones and tablets. And they are quite right in this opinion. That is why we are very happy to have the programming stations at our disposal." Just how practice-oriented the trainees are today is reflected in their preferred choice of final examination.

Examinations on the NC machine are nowadays clearly more common than the conventional written final papers.

In Schwandorf, the trainees and teachers alike are also full of enthusiasm about **HIT, the HEIDENHAIN Interactive Training** program. This interactive learning software combines theoretical learning with practical exercises and illustrative videos. This is the method in which HIT demonstrates important procedures and processes on a CNC machine and amply fills the gap in teaching inevitably left by the tight schedule for CNC programming. Johann Klein: "Students can learn on their own and as teacher I can use that time to devote myself to individual questions and problems."

The trainees greatly appreciate this: "With HIT I can manage almost completely on my own" and "the animations are very practice-oriented" are just some of the comments from the class. One student was full of praise: "HIT is the perfect solution for independent learning."

The application is designed in straightforward and comprehensible learning steps. The cycles, for example, are described very vividly. HIT shows you step by step what has to be done." Another student added: "If we do get to a point where we can't go on, Mr. Klein can answer our questions directly in class. In this way we learn very efficiently and also take practical knowledge with us from the vocational school to the company."



Equipped for training

Practice meets theory: the HEIDENHAIN programming station

HEIDENHAIN provides programming stations for classrooms so that for NC programming classes you can rely on the same equipment used in practice on milling, mill-turn, and turning machines.

What is a programming station?

At the heart of the HEIDENHAIN programming station is the programming station software. It runs on Windows PCs and is the PC-based counterpart of a HEIDENHAIN control. In this way the programming station software perfectly simulates the real machine workplace and permits you to create CNC programs as on the machine but in peace and quiet away from the shop floor. Many companies use the HEIDENHAIN programming stations also as an extension to or instead of CAD/CAM systems in their design and development departments for this reason.

Which programming stations are available?

You have a choice between programming stations for creating Klartext conversational and ISO programs for the milling and mill-turn controls:

- TNC 640
- TNC 620 and TNC 320
- iTNC 530

and programming stations for creating smart.Turn and DIN PLUS programs for the turning controls:

- CNC PILOT 640
- MANUALplus 620

What is in the programming station software package?

The programming station software delivers all the functionalities of the HEIDENHAIN controls. These include functions and software options as well as cycles.

Practical addition: the TNC operating panel

Naturally you can also operate the programming station software with a conventional PC keyboard. The interesting and practical point is that you can equip your classroom with the original TNC operating panel.

This then truly unites workshop conditions with theory. In the class you can implement the original operating panel with all the keypads like the axis selection keys and function keys.



You can download the free demo versions of the HEIDENHAIN programming stations and TNCremo from our home page: www.heidenhain.de > Software > Downloads

How do you implement the programming station?

You can choose between the free demo versions with a restricted storage capacity for NC programs of a maximum of 100 blocks and the full versions which HEIDENHAIN offers at very attractive prices for training purposes. You can also order the full versions as single-station licenses or network licenses for 1, 14, or 20 workstations.

How does my NC program get from the programming station to the machine?

You can use the free TNCremo PC software to transfer NC programs as well as tool and pallet tables between the programming station and the TNC control. Furthermore, you can also make data backups.

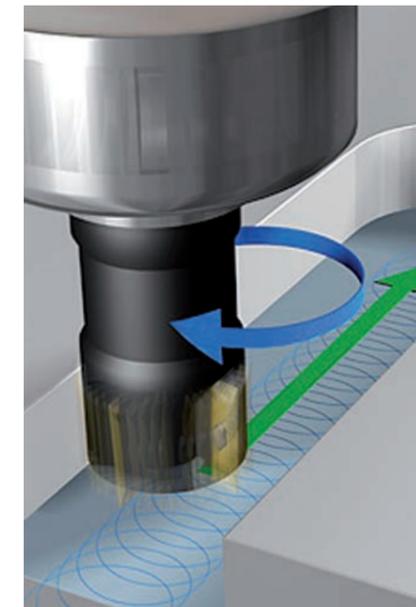
The paid version, TNCremoPlus, provides you with advanced functions like the live-screen function. This permits you to transfer screen contents to the PC and to always see what is happening on the control screen.

	Single-station license with TNC operating panel	Single-station license with virtual keyboard	Network license 1 station with virtual keyboard	Network license 14 stations with virtual keyboard	Network license 20 stations with virtual keyboard
Milling TNC 640	1113967-02	1113924-03	1125955-03	1113926-03	1113928-03
Milling TNC 620 and TNC 320	1113967-02	1113924-03	1125955-03	1113926-03	1113928-03
Milling iTNC 530	1113967-02	1113924-03	1125955-03	1113926-03	1113928-03
Turning MANUALplus and CNC PILOT 640	-	1230536-01	-	1230537-01	1230538-01

Equipped for training

A film says more than a thousand words: videos, animations, and webinars

Many processes and the necessary operations are difficult to explain in words. How would you explain "trochoidal milling" for example?



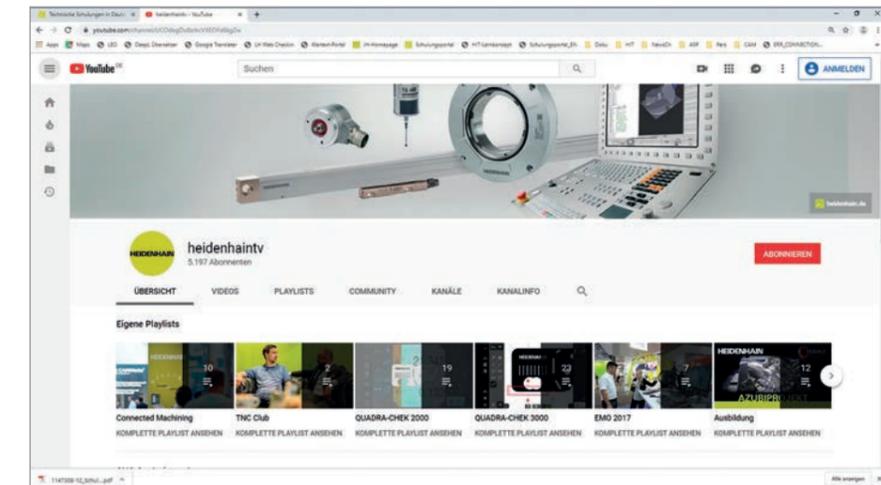
In texts we describe trochoidal milling like this:

"With trochoidal milling the roughing process is performed with circular movements overlaid with a linear forward feed." There is also a diagram. The reader needs a great deal of technical understanding and imagination to get an idea of what trochoidal milling is about. It takes animated images to really demonstrate the complex movements and above all the enormous dynamics of trochoidal milling.

HEIDENHAIN TV on YouTube

That is the reason for HEIDENHAIN TV on YouTube. This provides **videos from the shop floor and animated sequences** which you can use in your classes and for training. They clearly show the processes above all of complex machining operations and functions.

HEIDENHAIN TV also includes recordings of webinars held by our trainers from the HEIDENHAIN Training Center, which you are invited to use in whole or in excerpts in the classroom.



www.youtube.com/heidenhaintv



Equipped for training

Getting content across: HIT supports teaching

HIT software: didactic structure

The HEIDENHAIN Interactive Training program is a multimedia learning system for NC programming, providing advanced and apprentice-level skilled training for NC users. HIT is ideally suited for self-learning as well as for use in instructional courses. It consists of four HIT modules:

- HEIDENHAIN learning software
- HEIDENHAIN learning platform
- HIT Guidebook
- Programming station

These modules use images, videos, and animations to clearly illustrate the most important elements of CNC milling machines, the HEIDENHAIN controls, and their programming. Interactive operation and comprehensive test assignments precisely monitor your progress, making it possible to continuously reflect on what you have learned. The learning packages also offer the necessary technological fundamentals.

This also makes the HEIDENHAIN learning method suitable for persons new to this technology, as well as for non-specialists without basic CNC knowledge. Mobile devices such as tablets or smartphones make it particularly easy for you to learn at your convenience. The learning environment can be called through all HTML5-compatible browsers, regardless of the platform.

Effective learning with various types of media

HEIDENHAIN learning platform

HIT supports you when you begin programming with HEIDENHAIN controls. The functions of the controls are explained through animations and exercises. Then you can take tests at the end of each chapter to check what you have learned.

The courses can be started, paused, and continued online as well as offline. Great flexibility is provided by the possibility of learning using the Moodle app for Android and iOS mobile devices, or on a laptop or PC with any HTML5-compatible browser no matter which platform you have.

HIT Guidebook

The HIT Guidebooks assist the students and serve as guides to the HIT learning software, as summaries of the programming-relevant content, and as reference works after completion of the learning package.

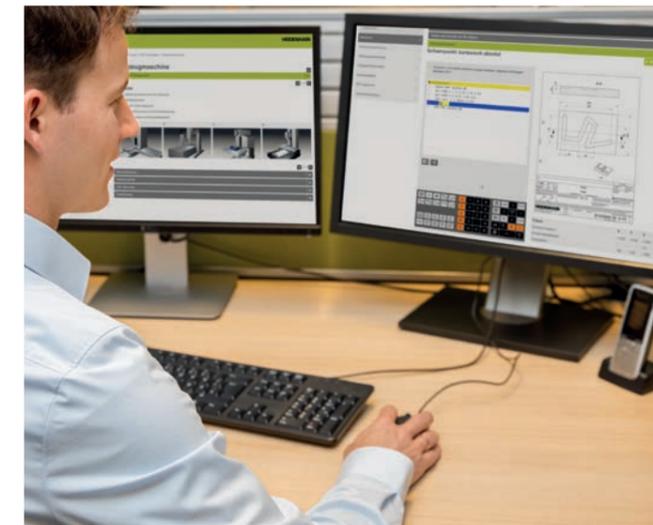
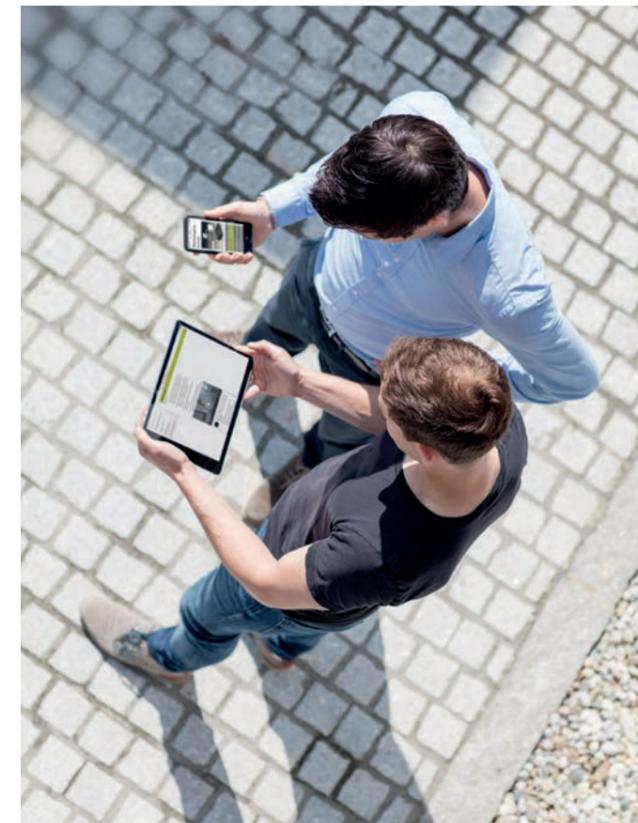
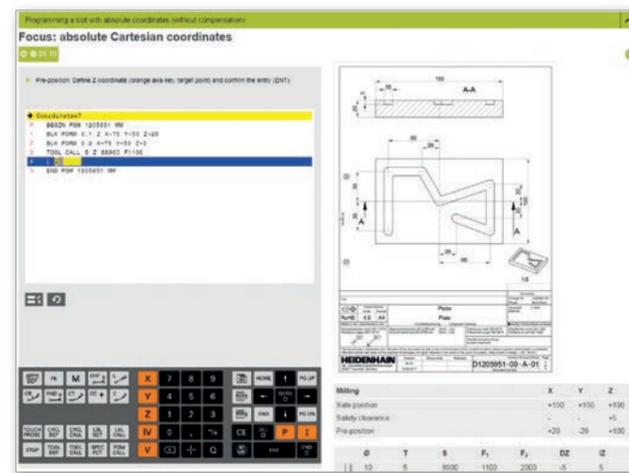
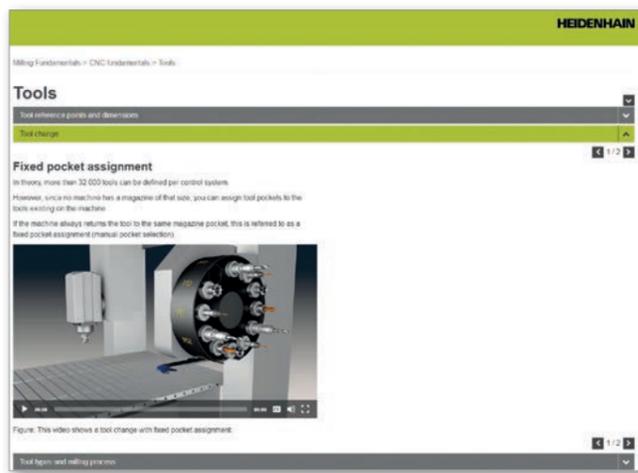
- Introduction to the HIT learning system
- Learning goals, and instructions on using the software
- Tips on programming techniques
- Available in digital form as a free PDF
- Available in print for a fee: www.tnc-verlag.de
- NC Solutions: Additional exercises, including for the programming station

www.klartext-portal.com/en ▶ Tips ▶ NC Solutions

Programming station

The programming station is the PC-based counterpart of a machine tool control. You can use it to create NC programs of the HIT program examples, just as on a real HEIDENHAIN control. You can write these programs, simulate them graphically, and then transfer them to the machine tool. With the free demo version of the programming station, all of the HIT programming exercises can be worked through and graphically simulated.

- Practical exercises with NC programs, such as additional tasks from the HIT Guidebook
- All software options of the control are enabled
- 100 blocks can be saved in the NC program
- Free downloading from www.klartext-portal.com



 The printed HIT workbooks can be ordered via the TNC-Verlag online shop: www.tnc-verlag.de



HEIDENHAIN Interactive Training

  Moodle Mobile

  Moodle Mobile

Equipped for training

Classroom classics: training kit, coordinate cross, and other tools

Training kit: measuring systems made clear

Without high-precision measuring systems, modern machine tools as well as machines used in the electronics industry, automation, and medical technology would never be able to achieve the degrees of precision possible today in the micrometer and even nanometer range. But how do rotary encoders, angle encoders, and linear encoders work?

The HEIDENHAIN training kit contains models and instruments as well as DVDs which you can use to clearly illustrate positioning:

- A 140-mm long glass scale on which you can demonstrate the measuring standard—a grating scale on glass.
- A cutaway model of a sealed linear encoder as found typically on machine tools. The cutaway model allows you to demonstrate and explain the components and their functions.

- A take-apart absolute rotary encoder as commonly used in electric drive controls. You can also use the take-apart model to give a clear explanation of the components and their functions.
- The Touch Probes DVD: How do you measure workpieces and tools and why is this so important for precision manufacturing?
- The Linear Encoders for Machine Tools DVD: Why is precise length measurement important for positioning?



Coordinate cross: all axes at a glance

There are many rules of thumb and mnemonics to help remember the designations of a machine tool's axes. But nothing is as simple as the HEIDENHAIN coordinate cross. It shows the X, Y, and Z axes as well as the rotary axes A, B, and C. This illustrates very clearly and quickly the

motion of the axes in the machine space. At the latest when tilting is on the curriculum the coordinate cross becomes an essential tool for explaining and understanding these movements.



User's Manuals

In order to have hard and fast documentation on the HEIDENHAIN controls for your classes you can procure the **User's Manuals** for all the current milling, mill-turning, and turning controls as PDF files or printed documents.

PDF available at www.heidenhain.de under > Documentation > Manuals > TNCguide



Printed version from www.tnc-verlag.de under > HEIDENHAIN-Benutzerhandbücher



In the Operating Manuals Archive (O.M.A.) on the HEIDENHAIN website you can also find the operating manuals for older controls:

www.heidenhain.de under > Documentation > Manuals > O.M.A. Controls



Rollups, posters

We also supply rollups and posters to assist you with teaching in classes and training in the apprenticeship workshop.

More information about the motifs and content are available by sending an e-mail to:

foeps@heidenhain.de

Equipped for training

Customized for you: training packages from HEIDENHAIN

To keep you from worrying about getting the right teaching materials, we have put together different packages based on our experience in training and in close cooperation with vocational schools and universities of applied sciences. If you find that the packages and their contents do not meet your requirements, please just get in touch with us. We will gladly customize the materials and the mix to meet your special needs.

Package 1: Complete equipment

With this package we provide everything you need to equip a classroom.

- 14 TNC operating panels
- One TNC programming station dongle
- One TNCremoPLUS dongle
- 15 coordinate crosses
- One User's Manual for Klartext Conversational Programming
- One User's Manual for Cycle Programming
- One training kit
- One HIT Milling – 3-Axis Machining premium classroom license
- 21 HIT Milling – 3-Axis Machining Guidebooks
- 20 HIT Milling 3-Axis Machining Exercise Sheets
- One HIT Milling – 3-Axis Machining Guidebook, Exercise Sheets with Solutions
- One HIT Milling – 3+2-Axis Machining, premium classroom license
- 21 HIT Milling – 3+2-Axis Machining Guidebooks
- 20 HIT Milling – 3+2-Axis Machining Guidebooks with Exercise Sheets
- One HIT Milling – 3+2-Axis Machining Guidebook, Exercise Sheets with Solutions
- One HIT Milling – 3+2-Axis Machining Guidebook with Solutions for Guided Programming
- One HIT Milling – 3-Axis Machining Guidebook, Solutions for Guided Programming
- 15 programming station DVDs
- 15 TNC training DVDs
- One set of FöPS posters (1 set = 6 items)
- Two rollups
- One-week basic training course for two persons in Traunreut
- Three-day practical workshop on site including commissioning of the HEIDENHAIN hardware and software; adjustment of the tool table to your machine; training on the machine

Package 2: Basic equipment

The basic equipment includes the essential components of our training materials and equipment:

- 14 TNC operating panels
- One TNC programming station dongle
- 15 programming station DVDs
- One TNCremoPLUS dongle
- 15 coordinate crosses
- One User's Manual for Klartext Conversational Programming
- One User's Manual for Cycle Programming
- One training kit

Package 3: Advertising material

The advertising material not only peeps up your classroom or apprenticeship workshop, but also provides additional important information:

- 15 programming station DVDs
- 15 TNC training DVDs
- One set of posters (six items)
- Two rollups

Package 4: E-learning

The E-learning package includes all available HIT modules:

- One HIT Milling – 3-Axis Machining premium classroom license
- 21 HIT Milling – 3-Axis Machining Guidebooks
- 20 HIT Milling 3-Axis Machining Exercise Sheets
- One HIT Milling – 3-Axis Machining Guidebook, Exercise Sheets with Solutions
- One HIT Milling – 3-Axis Machining Guidebook, Solutions for Guided Programming
- One HIT Milling – 3+2-Axis Machining, premium classroom license
- 21 HIT Milling – 3+2-Axis Machining Guidebooks
- 20 HIT Milling – 3+2-Axis Machining Guidebooks with Exercise Sheets
- One HIT Milling – 3+2-Axis Machining Guidebook, Exercise Sheets with Solutions
- One HIT Milling – 3+2-Axis Machining Guidebook with Solutions for Guided Programming

Package 5: Training/Commissioning

The package is designed for all those who have recently chosen HEIDENHAIN hardware and software for their work. The package comprises the following:

- One-week basic training course on Klartext conversational programming for two persons in Traunreut
- Three-day practical workshop on site including commissioning of the HEIDENHAIN hardware and software; adjustment of the tool table to your machine; training on the machine



Equipped for training

FöPS: the sponsorship program for professional training from HEIDENHAIN

Today's trainees are the skilled professionals of tomorrow who will shape our future.

Why shouldn't we introduce these trainees to modern and future-oriented technology now?

Imparting specialist knowledge and reinforcing it in practice can only come about when companies and professional training centers work together.

Essentially this means that trainees should be provided with the same tools in the company as in the vocational school.

This is why HEIDENHAIN has initiated the **FöPS** sponsorship program. The FöPS sponsorship program enables training companies that offer NC training in the metal sector with the main focus on milling

and turning to provide the same conditions for students doing NC training as in vocational training institutions.



All the offers in this catalog for further training, teaching materials, learning aids, and academic equipment are provided by HEIDENHAIN in the scope of its FöPS sponsorship program for vocational schools.

Your central address for FöPS activities:

HEIDENHAIN
Stichwort FöPS
Dr.-Johannes-Heidenhain-Straße 5
83301 Traunreut, Germany

With FöPS you also receive regular news bulletins about the latest offers in the program.

+49 8669 31-3132
 foeps@heidenhain.de

Fax query about "Equipped for Training"

Your address:

School / University _____ Contact person _____
 _____ E-mail address _____
 Street _____ Telephone number _____
 Zip code _____ City _____ Country _____

By fax
+49 8669 32-3132
 By e-mail
foeps@heidenhain.de

Please send me an offer for the following equipment:

	Single-station license with TNC operating panel	Single-station license with virtual keyboard	Network license 1 station with virtual keyboard	Network license 14 stations with virtual keyboard	Network license 20 stations with virtual keyboard
Programming station for milling TNC 640	<input type="checkbox"/> 1113967-02	<input type="checkbox"/> 1113924-03	<input type="checkbox"/> 1125955-03	<input type="checkbox"/> 1113926-03	<input type="checkbox"/> 1113928-03
Programming station for milling TNC 620 and TNC 320	<input type="checkbox"/> 1113967-02	<input type="checkbox"/> 1113924-03	<input type="checkbox"/> 1125955-03	<input type="checkbox"/> 1113926-03	<input type="checkbox"/> 1113928-03
Programming station for milling iTNC 530	<input type="checkbox"/> 1113967-02	<input type="checkbox"/> 1113924-03	<input type="checkbox"/> 1125955-03	<input type="checkbox"/> 1113926-03	<input type="checkbox"/> 1113928-03
Programming station for turning MANUALplus and CNC Pilot 640	-	<input type="checkbox"/> 1230536-01	-	<input type="checkbox"/> 1230537-01	<input type="checkbox"/> 1230538-01

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|---|-------------------------------|------------------------------------|
| <input type="checkbox"/> Training package 1: Complete equipment | PC software TNCremoPlus | <input type="checkbox"/> 340447-xx |
| <input type="checkbox"/> Training package 2: Basic equipment | Measuring system training kit | <input type="checkbox"/> 620709-02 |
| <input type="checkbox"/> Training package 3: Advertising material | Coordinate cross | <input type="checkbox"/> 352436-01 |
| <input type="checkbox"/> Training package 4: E-learning | | |
| <input type="checkbox"/> Training package 5: Training/Commissioning | | |

Please contact me for a personal interview.

 Date, signature



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Mastering nanometer accuracy



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