



HEIDENHAIN



**HIT – Learning Concept
for HEIDENHAIN Controls
for Milling and Turning**

The three HIT modules

The **HIT software** supports you when you begin programming with HEIDENHAIN controls. It explains the control functions with the aid of animations, small tasks and exercises. Then you can take tests to check what you have learned.

The HIT software is available with a single-station or network license, and selected chapters are available as a free demo version.

The screenshot displays the HEIDENHAIN HIT software interface. At the top, it says "HEIDENHAIN HIT HEIDENHAIN Interactive Training". On the left is a navigation menu with sections: 1. The CNC Milling Machine, 2. CNC Fundamentals, 3. Technological Fundamentals, 4. Linear Motions, 5. Contour Programming (highlighted), 6. FK Programming, 7. Cycles, 8. LBL Applications, and Final test. Under "5. Contour Programming", sub-items include: Radius compensation, Approach and departure, Roundings and chamfers, Circles, Circles with radius, Tangential circles, Arranging blocks, Summary, Writing NC programs, Test 2, and Workbook / Programming station. The main content area is titled "Circles with radius" and contains the following text: "If the dimensions given for the circle are not the center and end point, but rather the end point and the radius, then there are always two solutions." Below this is a prompt: "Please enter the coordinates of the end point, the radius, and the direction of rotation. Press ENTER to confirm your entry." There is an input form with fields for "CR X", "Y", "R", and "DR", and a "C/Y" button. To the right are two diagrams showing a circle with center M, end point A, and start point E. The first diagram shows a small arc with radius R and opening angle $\pm 150^\circ$. The second diagram shows a large arc with radius R and opening angle $\pm 103^\circ$. Below these is a coordinate system with X and Y axes. A complex contour is drawn with dimensions: X-axis from 0 to 85, Y-axis from 0 to 60. The contour includes a semi-circular cutout with radius R12, a semi-circular protrusion with radius R13, and a semi-circular notch with radius R14. Dimensions for the cutout and protrusion are given as 20 and 25 respectively. The notch has a depth of 10. The overall width is 85 and height is 60.

Educational content prepared didactically

HIT Software

The **HIT workbook** is the guide through the HEIDENHAIN learning concept. It includes assignments to be completed using the HIT software and/or the programming station as PC-based modules.

You will find many assignments and numerous programming examples here. Using the programming of a workpiece as a guide, the workbook leads you step-by-step through the HIT software and programming station modules.

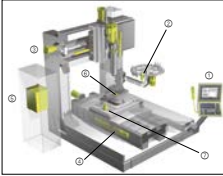
The HIT workbook is available in printed form or as a cost-free PDF document.

1 The CNC-milling machine

1.1 Setup

1. The CNC-milling machine

Setup



Name the green elements of the machine tool.


- _____
- _____
- _____
- _____
- _____
- _____
- _____

10 FUNDAMENTALS OF MILLING – CONVERSATIONAL PROGRAMMING HEIDENHAIN

2 Tilling with one spatial angle

PLANE SPATIAL

A pyramid is programmed in this chapter.



Pyramid

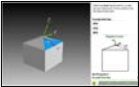
Spatial angles are designated with **SPA**, **SPB** and **SPC**.
The following applies:

Abbreviation	Meaning
SPATIAL	Spatial = in space
SPA	spatial A : rotation about the X axis
SPB	spatial B : rotation about the Y axis
SPC	spatial C : rotation about the Z axis

You must always define all three spatial angles SPA, SPB and SPC, even if one or two of them = 0.

Enter the values for the spatial angles **SPA**, **SPB** and **SPC** in the following example.

1 PLANE SPATIAL SPA SPB SPC



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Examples from HIT workbooks

HIT Workbook

The **programming station** is the PC-based counterpart of a control for a machine tool. You can use it to create NC programs of the HIT program examples, just as on a real HEIDENHAIN control. You can write and graphically simulate the programs, and then transfer them to the machine tool and run them there.

The free demo version of the programming station is also suitable for the HEIDENHAIN learning concept. It offers:

- Programming via PC keyboard or virtual keyboard
- Free downloading from www.klartext-portal.com
- Storage of 100 blocks per program
- All software options of the control are enabled



Programming station with virtual keyboard

Programming Station

As a learning concept for HEIDENHAIN controls, the HIT program (HEIDENHAIN Interactive Training) ideally combines theoretical learning with practical exercises into an autodidactic educational strategy.

The HEIDENHAIN learning concept can be used for qualified basic and advanced training. It consists of three modules:

- HIT software
- HIT workbook
- HEIDENHAIN programming station

Interactive operation and comprehensive test assignments precisely monitor your progress, making it possible to continuously reflect on what you have learned.

HIT is available in various learning packages. **HIT Conversational** and **HIT DIN/ISO** teach you the most important elements of a CNC milling machine and impart fundamental knowledge about TNC programming. Of course, the learning packages also include the necessary technological fundamentals. This also makes the HEIDENHAIN learning concept ideal for persons new to this technology, as well as for non-specialists without basic CNC knowledge.

The **HIT Tilting 3+2** learning package goes one step further: Building on the HIT Conversational package, it imparts the knowledge required for programming tilted operations with the PLANE function of the TNC.

The **HIT Turning** learning package provides all information required for CNC turning with HEIDENHAIN controls.

HIT is available in English, German and many other languages.

The HEIDENHAIN Learning Concept



You can purchase the HIT software and the HIT workbook easily and directly from the **online shop**:

- www.klartext-portal.com
- HEIDENHAIN Interactive Training
- Shop
- Link: HIT Online Shop

You can purchase the following products:

- **Demo version** (cloud application) 0.00 €
- **Single-station license** (cloud application) 23.50 €
- **Single-station license** (download) 37.50 €
- **Network license** for 20 stations (download) 396.00 €

Other currencies are converted to on a daily basis.

We accept



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