

# **HEIDENHAIN**



# **POSITIP 8000 Demo**

User's Manual Milling

Digital Readout

English (en) 03/2022

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**Fundamentals** 

#### 1.1 Overview

This chapter contains information about the product and this manual.

# 1.2 Information on the product

#### 1.2.1 Demo software for demonstration of the device functions

POSITIP 8000 Demo is a software application you can install on a computer independently of the device. POSITIP 8000 Demo helps you to become familiar with, try out or present the functions of the device.

#### 1.2.2 Demo software features

Because of the missing hardware environment the range of features of the demo software does not correspond to the complete functional range of the device. However, you can use the descriptions to familiarize yourself with the most important functions and the user interface.

### 1.3 Intended use

The products of the POSITIP 8000 series are advanced digital readouts for use on manually operated machine tools. In combination with linear and angle encoders, digital readouts of this series return the position of the tool in more than one axis and provide further functions for operating the machine tool.

POSITIP 8000 Demo is a software product for demonstration of the basic features of the POSITIP 8000 series products. POSITIP 8000 Demo may be used only for presentation, training or testing purposes.

# 1.4 Improper use

POSITIP 8000 Demo is not intended for any use other than the intended use. Any use for other purposes is prohibited, specifically:

- For productive purposes in production systems
- As part of production systems

# 1.5 Notes on reading the documentation

#### Have you found any errors or would you like to suggest changes?

We continuously strive to improve our documentation for you. Please help us by sending your suggestions to the following e-mail address:

userdoc@heidenhain.de

# 1.6 Symbols and fonts used for marking text

In these instructions the following symbols and fonts are used for marking text:

Depiction	Meaning
<b>&gt;</b>	Identifies an action and the result of this action
>	Example:
	▶ Tap <b>OK</b>
	> The message is closed
<b></b>	Identifies an item of a list
<b></b>	Example:
	<ul><li>TTL interface</li></ul>
	<ul><li>EnDat interface</li></ul>
	■
Bold	Identifies menus, displays and buttons
	Example:
	Tap Shut down
	> The operating system shuts down
	Turn the power switch off

Software installation

#### 2.1 Overview

This chapter provides all of the information needed for downloading and properly installing POSITIP 8000 Demo on a computer.

# 2.2 Downloading the installation file

Before you can install the demo software on a computer, you need to download an installation file from the HEIDENHAIN Portal.



To download the installation file from the HEIDENHAIN Portal, you need access rights to the **Software** portal folder in the directory of the appropriate product.

If you do not have access rights to the Portal's **Software** folder, you can request the access rights from your HEIDENHAIN contact person.

- ▶ Download the latest version of POSITIP 8000 Demo here: www.heidenhain.de
- Select the download folder of your browser
- Unpack the downloaded file with the extension .zip into a temporary storage folder
- > The following files will be unpacked into the temporary storage folder:
  - Installation file with the extension .exe
  - File **DemoBackup.mcc**

# 2.3 System requirements

If you want to install POSITIP 8000 Demo on a computer, the computer system must meet the following requirements:

- Microsoft Windows 7 or higher
- Screen resolution of at least 1280 × 800 recommended

# 2.4 Installing POSITIP 8000 Demo in Microsoft Windows

Select the temporary storage folder into which you unpacked the downloaded file with the .zip extension

Further information: "Downloading the installation file", Page 14

- ▶ Run the installation file with the extension .exe
- > The installation wizard is opened:

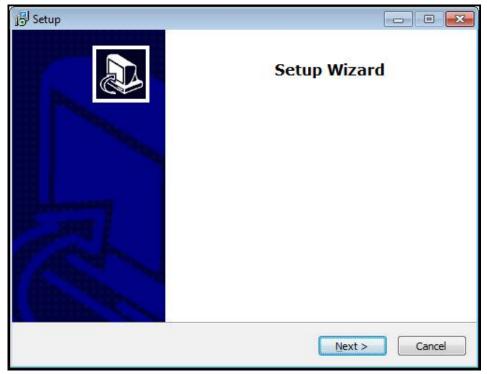


Figure 1: Installation wizard

- Click Next
- ▶ In the **License Agreement** installation step, accept the terms of the license
- Click Next



In the **Select Destination Location** installation step, the installation wizard suggests a storage location. We recommend retaining the suggested storage location.

- ▶ In the **Select Destination Location** installation step, select the storage location to which you want to save POSITIP 8000 Demo
- Click Next



In the **Select Components** installation step, the ScreenshotClient program is also installed by default. ScreenshotClient enables you to take screenshots of the active screen.

If you want to install ScreenshotClient

► In the **Select Components** installation step, leave the default settings unchanged

Further information: "ScreenshotClient", Page 67

- In the **Select Components** installation step:
  - Select the type of installation
  - Activate or deactivate the option Screenshot Utility

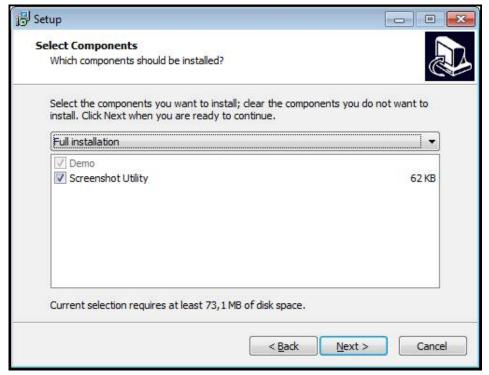


Figure 2: Installation wizard with activated options **Demo software** and **Screenshot Utility** 

- ▶ Click Next
- ▶ In the **Select Start Menu Folder** installation step, select the storage location at which you want to create the start menu folder
- ▶ Click Next
- ▶ In the **Select Additional Tasks** installation step, select or deselect **Desktop icon**
- Click Next
- Click Install
- > Installation starts—the status of installation is shown in the progress bar
- ► After installation has been completed successfully, use **Finish** to close the installation wizard
- > The program has been successfully installed on your computer

# 2.5 Uninstalling POSITIP 8000 Demo

- ▶ Open the following in succession in Microsoft Windows:
  - Start
  - All programs
  - HEIDENHAIN
  - POSITIP 8000 Demo
- ► Click Uninstall
- > The uninstallation wizard opens
- ► To confirm uninstalling, click **Yes**
- > Unistallation starts, and the progress bar indicates the status of the unistallation process
- ► After uninstallation has been completed successfully, close the uninstallation wizard with **OK**
- > The program has been successfully removed from your computer

3

**Basic operation** 

#### 3.1 Overview

This chapter describes the user interface, operating elements, and basic functions of POSITIP 8000 Demo.

# 3.2 Using the touchscreen and input devices

### 3.2.1 Touchscreen and input devices

The operating elements on the user interface of POSITIP 8000 Demo are operated via a touchscreen or a connected mouse.

To enter data, you can use the screen keyboard of the touchscreen or a connected keyboard.

### 3.2.2 Gestures and mouse actions

To activate, switch or move the operating elements of the user interface, you can use POSITIP 8000 Demo's touchscreen or a mouse. Gestures are used to operate the touchscreen and the mouse.



The gestures for operating the touchscreen may differ from the gestures for operating the mouse.

If the gestures for operating the touchscreen differ from those for operating the mouse, then these instructions describe both operating options as alternative actions.

The alternative actions for operating the touchscreen or the mouse are identified by the following symbols:



Operation using the touchscreen



Operation using the mouse

The following overview describes the different gestures for operating the touchscreen or the mouse:

#### **Tapping**



Means touching the screen briefly with your fingertip



Means pressing the left mouse button once

#### The actions initiated by tapping include



- Selection of menus, features, or parameters
- Entering characters with the screen keyboard
- Closing dialogs

#### Holding (long press)



Means touching the screen and holding your finger(s) on it for a few seconds



Means pressing the left mouse button once and holding it down

#### The actions initiated by holding are



 Quickly changing the values in input fields with plus and minus buttons

#### **Dragging**



Is a combination of long press and then swipe, moving a finger over the touchscreen when at least the starting point of motion is defined



Means pressing the left mouse button once and holding it down while moving the mouse; at least the starting point of the motion is defined

#### The actions initiated by dragging include



Scrolling through lists and texts

# 3.3 General operating elements and functions

The operating elements described below are available for configuration and operating the product via the touchscreen or input devices.

#### Screen keyboard

The screen keyboard enables you to enter text into the input fields of the user interface. Depending on the input field, a numeric or alphanumeric screen keyboard is shown.

- ► To enter values, tap an input field
- > The input field is highlighted
- > The screen keyboard is displayed
- ► Enter text or numbers
- > If the entry is correct and complete, a green check mark is displayed as applicable
- > If the entry is incomplete or the values are incorrect, a red exclamation mark is displayed as applicable. In this case, the entry cannot be completed
- ► To apply the values, confirm the entry with **RET**
- > The values are displayed
- > The screen keyboard disappears

#### Operating element

#### **Function**



#### Input fields with plus and minus buttons

To adjust a numerical value, use the + (plus) and - (minus) buttons to the left and right of the numerical value.

- ► Tap + or until the desired value is displayed
- Long-press + or to scroll through the values more quickly
- > The selected value is displayed



#### Toggle switch

Use the toggle switch to switch between functions.

- Tap the desired function
- > The active function is shown in green
- > The inactive function is shown in light gray



#### Slide switch

With the slide switch, you can activate or deactivate a function.

Drag the slider to the desired position

or

- ► Tap the slide switch
- > The function is activated or deactivated

# Operating element I

#### **Function**



#### **Drop-down list**

Buttons that open drop-down lists are indicated by a triangle pointing down.

- ► Tap the button
- > The drop-down list opens
- > The active entry is highlighted in green
- ► Tap the desired entry
- > The selected entry is applied

#### **Operating element**

#### **Function**



#### Undo

This button allows you to undo the last action.

Processes that have already been concluded cannot be undone.

- ▶ Tap **Undo**
- > The last action is undone



#### Add

- ► Tap **Add** to add a feature
- > The new feature is added



#### Close

► Tap Close to close a dialog



### Confirm

► Tap **Confirm** to conclude an action



#### **Back**

► Tap **Back** to return to the higher level in the menu structure

# 3.4 POSITIP 8000 Demo – startup and shut-down

# 3.4.1 Starting POSITIP 8000 Demo



Before using POSITIP 8000 Demo, you need to perform the steps for configuring the software.



- ► Tap **POSITIP 8000 Demo** on the Microsoft Windows desktop or
- ▶ Open the following in sequence in Microsoft Windows:
  - Start
  - All programs
  - HEIDENHAIN
  - POSITIP 8000 Demo



Two executable files with different modes of appearance are available:

- **POSITIP 8000 Demo**: starts within a Microsoft Windows window
- POSITIP 8000 Demo (full screen): starts in full-screen mode



- ► Tap **POSITIP 8000 Demo** or **POSITIP 8000 Demo (full screen)**
- > POSITIP 8000 Demo starts an output window in the background. The output window is not relevant for operation and is closed again when the POSITIP 8000 Demo is shut down
- POSITIP 8000 Demo starts the user interface with the User login menu

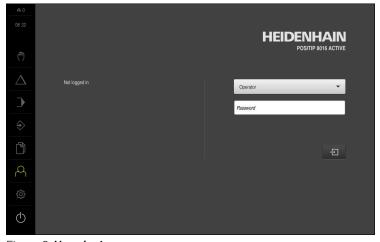


Figure 3: **User login** menu

### 3.4.2 Shutting down the POSITIP 8000 Demo



► Tap **Switch off** in the main menu



- ▶ Tap Shut down
- > POSITIP 8000 Demo is shut down



To shut down POSITIP 8000 Demo in the Microsoft Windows window, also use the **Switch-off** menu.

If you use **Close** to close the Microsoft Windows window, all settings will be lost.

# 3.5 User login and logout

In the **User login** menu, you can log in and out of the product as a user. Only one user can be logged in to the product at a time. The logged-in user is displayed. Before a new user can log in, the logged-in user has to log out.



The product provides various authorization levels that grant the user full or restricted access to management and operation functionality.

#### 3.5.1 User login



- ► Tap **User login** in the main menu
- ▶ In the drop-down list, select the **OEM** user
- ▶ Tap the **Password** input field
- ▶ Enter the "**oem**" password of the **OEM** user
- ► Confirm entry with **RET**



- ▶ Tap Log in
- > The user is logged in and the **Manual operation** menu is displayed

#### 3.5.2 User logout



► Tap **User login** in the main menu



- ► Tap Log out
- > The user is logged out
- All functions of the main menu are inactive, except for Switch off
- > The product can only be used again after a user has logged in

# 3.6 Setting the language

The user interface language is English. You can change to another language, if desired.



► Tap **Settings** in the main menu



- ▶ Tap User
- > The logged-in user is indicated by a check mark
- Select the logged-in user
- > The language selected for the user is indicated by a national flag in the **Language** drop-down list
- Select the flag for the desired language from the Language drop-down list
- > The user interface is displayed in the selected language

### 3.7 User interface

### 3.7.1 User interface after start-up

#### User interface after start-up

If automatic user login is activated, and the last user who logged in was of the **Operator** type, then the product displays the **Manual operation** menu after starting up.

If automatic user login is not activated, then the product opens the **User login** menu.

Further information: "User login menu", Page 35

#### 3.7.2 Main menu of the user interface

User interface (in Manual operation mode)

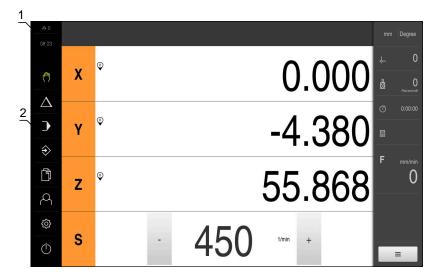


Figure 4: User interface (in Manual operation mode)

- 1 Message display area, displays the time and the number of unclosed messages
- 2 Main menu with operating elements

## Main menu operating elements

Operating element	Function
<b>Δ</b> 3	Message
$\Delta$	Display of an overview of all messages as well as the number of messages that have not been closed
<b>₽</b>	Manual operation
( )	Manual positioning of machine axes
	Further information: "Manual operation menu", Page 28
$\wedge$	MDI mode
$\Delta$	Direct input of the desired axis movements (Manual Data Input); the distance to go is calculated and displayed
	Further information: "MDI menu", Page 29
	Program run
	Execution of a previously created program with user interface
	Further information: "Program run menu ", Page 31
$\triangle$	Programming
$\checkmark$	Creation and management of individual programs
	Further information: "Programming menu ", Page 32
	File management
	Management of the files that are available on the product
	Further information: "File management menu", Page 34
Q	User login
	Login and logout of the user
	Further information: "User login menu", Page 35
	If a user with additional permissions (Setup or OEM user type) is logged in, then the gear symbols appears.
~~	Settings
<b>₹</b> ○}	Settings of the product, such as setting up users, configuring sensors, or updating the firmware
	Further information: "Settings menu", Page 36
	Switch-off
	Shutdown of the operating system or activation of power- saving mode
	Further information: "Switch-off menu", Page 37

# 3.7.3 Manual operation menu

#### Calling up



- ► Tap Manual operation in the main menu
- > The user interface for manual operation is displayed

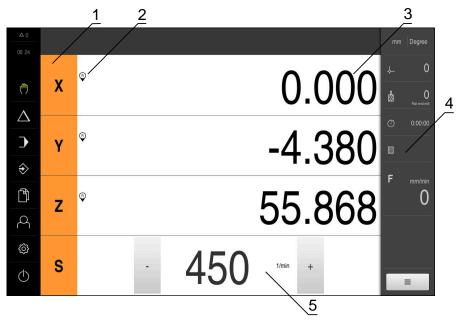


Figure 5: Manual operation menu

- 1 Axis key
- 2 Reference
- **3** Position display
- 4 Status bar
- **5** Spindle speed (machine tool)

In the **Manual operation** menu, the workspace shows the position values measured at the machine axes.

The status bar provides auxiliary functions.

### 3.7.4 **MDI** menu

## Calling up



- ► Tap **MDI** in the main menu
- > The user interface for MDI mode is displayed

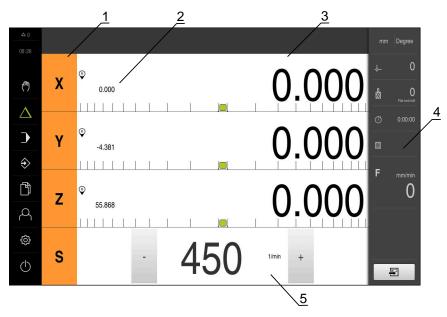


Figure 6: MDI menu

- **1** Axis key
- 2 Actual position
- **3** Distance-to-go
- 4 Status bar
- **5** Spindle speed (machine tool)

#### MDI block dialog box



- ► Tap **MDI** in the main menu
- ► Tap **Create** on the status bar
- > The user interface for MDI mode is displayed

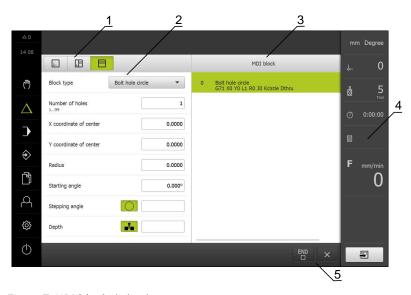


Figure 7: **MDI block** dialog box

- 1 View bar
- 2 Block parameters
- 3 MDI block
- 4 Status bar
- 5 Block tools

The **MDI** (Manual Data Input) menu enables you to enter the desired axis movements directly. You specify the distance to the target point, and the distance to go is then calculated and displayed.

The status bar provides additional measured values and functions.

## 3.7.5 Program run menu

#### Calling up



- ► Tap **Program run** in the main menu
- > The user interface for Program Run is displayed

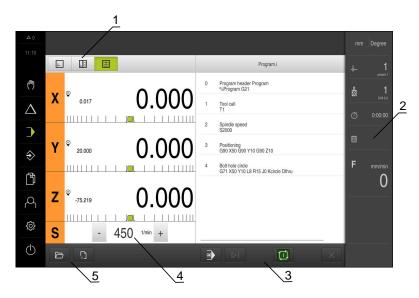


Figure 8: **Program run** menu

- 1 View bar
- 2 Status bar
- 3 Program control
- 4 Spindle speed (machine tool)
- **5** Program management

The **Program run** menu makes it possible to execute a program that has previously been created in the Programming operating mode. During execution, a wizard will guide you through the individual program steps.

In the **Program run** menu, you can display a simulation window that visualizes the selected block.

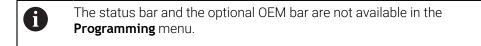
The status bar provides additional measured values and functions.

# 3.7.6 Programming menu

### **Calling up**



- ► Tap **Programming** in the main menu
- > The user interface for programming is displayed



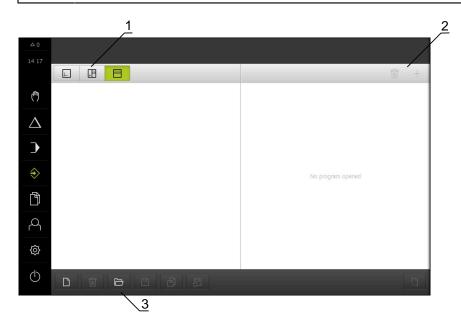


Figure 9: **Programming** menu

- 1 View bar
- **2** Toolbar
- **3** Program management

You can see a visualization of the selected block in the optional simulation window.

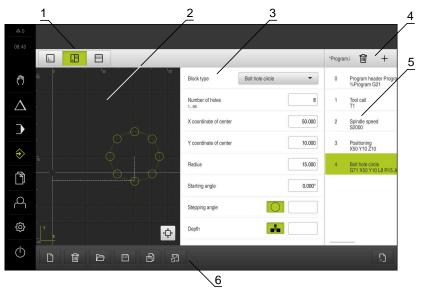


Figure 10: **Programming** menu with opened simulation window

- 1 View bar
- 2 Simulation window (optional)
- **3** Block parameters
- 4 Toolbar
- 5 Program blocks
- **6** Program management

In the **Programming** menu, you can create and manage programs. You define individual machining steps or machining patterns as blocks. A sequence of blocks then forms a program.

# 3.7.7 File management menu

### Calling up



- ▶ Tap **File management** in the main menu
- > The file management user interface is displayed

### **Short description**

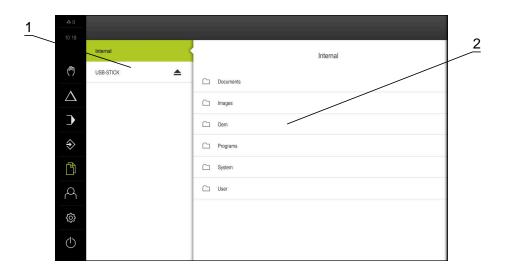


Figure 11: File management menu

- **1** List of available storage locations
- **2** List of folders in the selected storage location

The **File management** menu shows an overview of the files stored in the product's memory.

# 3.7.8 User login menu

### **Calling up**



- ► Tap **User login** in the main menu
- > The user interface for user login and logout is displayed

#### **Short description**

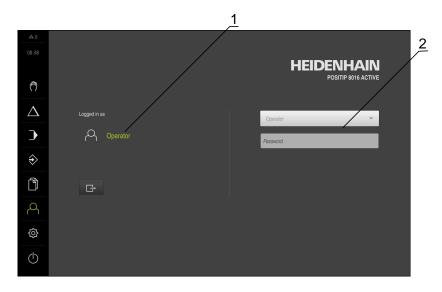


Figure 12: User login menu

- **1** Display of the logged-in user
- 2 User login

The **User login** menu shows the logged-in user in the column on the left. The login of a new user is displayed in the right-hand column.

To log in another user, the logged-in user must first log out.

Further information: "User login and logout", Page 25

# 3.7.9 Settings menu

### **Calling up**



- ► Tap **Settings** in the main menu
- > The user interface for the product settings is displayed

### **Short description**

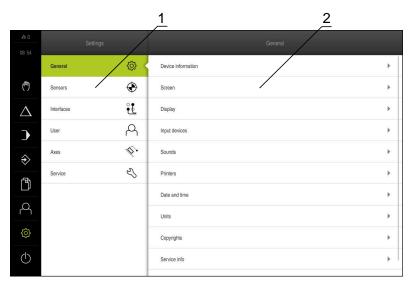


Figure 13: **Settings** menu

- 1 List of setting options
- **2** List of setting parameters

The **Settings** menu shows all of the options for configuring the product. The settings parameters allow you to adapt the product to on-site requirements.



The product provides various authorization levels that grant the user full or restricted access to management and operation functionality.

## 3.7.10 Switch-off menu

## Calling up



- ► Tap **Switch off** in the main menu
- > The operating elements for shutting down the operating system, for activating the energy-saving mode and for activating the cleaning mode are displayed

## **Short description**

The **Switch off** menu provides the following options:

Operating element	Function		
	Shut down		
U	Shuts down POSITIP 8000 Demo		
<> V	Energy saving mode		
$ \mathcal{D} $	Switches the screen off and puts the operating system into energy-saving mode		
	Cleaning mode		
	Switches the screen off; the operating system continues unchanged		

Further information: "POSITIP 8000 Demo – startup and shut-down", Page 24

# 3.8 Position display

The unit's position display shows the axis positions and additional information about the configured axes (if applicable).

# 3.8.1 Operating elements of the position display

Meaning					
Axis key					
Axis key functions:					
<ul> <li>Tapping the axis key: opens the input field for position value (Manual operation) or dialog box MDI block (MDI mode)</li> </ul>					
<ul><li>Holding down the axis key: sets the current position as zero point</li></ul>					
<ul><li>Dragging the axis key to the right: opens menu if functions are available for the axis</li></ul>					
Reference mark search performed successfully					
Reference mark search not performed or no reference mark detected					
Selected gear stage of the gear spindle					
<b>Further information:</b> "Setting the gear stage for gear spindles", Page 39					
Spindle speed cannot be achieved with selected gear stage  • Select a higher gear stage					

Symbol	Meaning		
<i>2</i> \$3	Spindle speed cannot be achieved with selected gear stage		
<b>~</b>	<ul><li>Select a lower gear stage</li></ul>		
	In MDI mode and Program Run , a scaling factor is applied to the axis		
<b>©</b>	Axis is feedback-controlled		
1250	Actual spindle speed		
1250	Input field for controlling the spindle speed		
1250 -	Further information: "Setting the spindle speed", Page 38		
- + X	Virtual axis keys for operating NC axes		

## 3.8.2 Position display functions

## Setting the spindle speed

You can control the spindle speed depending on the configuration of the connected machine tool.

- ➤ To switch from the display of the spindle speed to the input field (if required), drag the display to the right.
- > The **Spindle speed** input field is displayed
- 1250 \*\*\* \*

► Tap or long-press + or - to set the spindle speed to the desired value

or

- ► Tap the **Spindle speed** input field
- ► Enter the desired value
- ► Confirm entry with **RET**
- The product applies the entered spindle speed as the nominal value and controls the spindle of the machine tool accordingly



To return to the display of the actual spindle speed, drag the input field to the left

## Setting the gear stage for gear spindles

If your machine tool uses a gear spindle, then you can select the gear stage used.



The selection of the gear stages can also be controlled via an external signal.



▶ In the working space, drag the **S axis key** to the right



- ▶ Tap Gear stage
- > The **Set gear stage** dialog is displayed
- Tap the desired gear stage



- ► Tap Confirm
- > The selected gear stage is now adopted as the new value
- Drag the S axis key to the left



The icon for the selected gear stage appears next to the S axis key



If the desired spindle speed cannot be attained with the selected gear stage, then the gear stage icon will flash with an upward pointing arrow (higher gear stage) or with a downward pointing arrow (lower gear stage).

## Traversing with virtual axis keys

If virtual axis keys have been configured on the device, you can move the NC axes with them.

### **Example: Negative traverse with Y axis**



- ▶ In the working space, drag the **Y** axis key to the right
- > The operating elements **minus** and **plus** are displayed
- If necessary, press the key for enabling the axis keys (only if configured)
- ► Long-press minus



Depending on the configuration, the virtual axis keys are either buttons (long-press) or switches (tap).

> The Y axis moves in negative direction

## 3.9 Status bar



The status bar and the optional OEM bar are not available in the **Programming** menu.

In the status bar, the product shows the feed rate and traversing speed. The operating elements of the status bar also give you direct access to the preset table and tool table, as well as to the stopwatch and calculator features.

# 3.9.1 Operating elements of the status bar

The status bar provides the following operating elements:

Operating element	Function
mm Degree	Quick access menu  Setting of the units for linear values and angular values, configuration of a scaling factor; tapping opens the quick
	access menu
<del>-</del>	Preset table Display of the current preset; tapping opens the preset table
п	Tool table
	Display of the current tool; tapping opens the tool table
	Stopwatch
	Time display with Start / Stop function in h:mm:ss format
	Calculator
	Calculator with the most important mathematical functions and speed calculator
F <sub>mm/min</sub>	Feed rate
0	Display of the current feed rate of the fastest linear axis If all linear axes are at a standstill, the feed rate of the fastest rotational axis is shown
	In <b>Manual operation</b> and <b>MDI mode</b> , you can set the feed-rate value; tap to open the dialog
F.7° mm/min	Jog increment
0	Entering the jog increment and activating the jog increment function in <b>Manual operation</b> mode; tap to open the dialog
-	If this function is active, a corresponding icon is shown
OVR %	Override
NC	Display of the changed traversing speed of the fastest linear axis.
	If all linear axes are at a standstill, the changed traversing speed of the fastest rotational axis is displayed
	The change is made using an external controller on an NC-controlled machine tool
_	Auxiliary functions
	Auxiliary functions in Manual operation mode
	MDI block
	For creating machining blocks in MDI mode

## 3.9.2 Setting the feed-rate value

## Setting the feed-rate value

For **Manual operation** and **MDI mode**, you can set the feed-rate value in the **Feed** rate dialog

## Dialog

## **Function**



- ► Tap **Feed rate** on the status bar
  - For linear axes, use the **mm/min** input field
  - For rotational axes, use the \*/min input field

## 3.9.3 Entering and activating the jog increment

## Entering and activating the jog increment

In **Manual operation** mode, you can enter and activate a jog increment via the **Feed** rate/Jog increment dialog.

### **Dialog**

#### **Function**



- ▶ Tap **Feed rate** /**Jog increment** on the status bar
- ► Activate the jog increment with the **ON/OFF** slide switch
  - For linear axes, use the **jog increment mm/min** input field
  - For rotational axes, use the **jog increment** ° input field

## 3.9.4 Additional functions in Manual operation mode



► To call the additional functions, tap **Additional functions** in the status bar

The following operating elements are available:

Operating element	Function
	Reference marks
	For starting the reference mark search
	Probing
	For probing the edge of a workpiece
	Probing
Ш	For finding the centerline of a workpiece
	Probing
	For finding the center point of a circular feature (hole or cylinder)

## 3.10 **OEM** bar



The status bar and the optional OEM bar are not available in the **Programming** menu.

Depending on the configuration, the optional OEM bar enables you to control the functions of the connected machine tool.

## 3.10.1 Operating elements of the OEM bar



The operating elements that are available on the OEM bar depend on the configuration of the device and of the connected machine tool.

The following operating elements are typically available in the **OEM bar**:

## **Operating element**

## **Function**



Logo

Displays the configured OEM logo

# 1500 1/min

## Spindle speed

Shows one or more default values for the spindle speed

Software configuration

## 4.1 Overview



Make sure that you have read and understood the "Basic operation" chapter before carrying out the actions described below.

Further information: "Basic operation", Page 19

Before you can use POSITIP 8000 Demo correctly after successful installation, you need to configure POSITIP 8000 Demo. This chapter describes how to perform the following settings:

- Setting the language
- Activating software options
- Selecting the product version (optional)
- Selecting the Application
- Copying the configuration file
- Uploading the configuration data

# 4.2 Setting the language

The user interface language is English. You can change to another language, if desired.



▶ Tap **Settings** in the main menu



- ▶ Tap User
- > The logged-in user is indicated by a check mark
- Select the logged-in user
- The language selected for the user is indicated by a national flag in the Language drop-down list
- Select the flag for the desired language from the Language drop-down list
- > The user interface is displayed in the selected language

# 4.3 Activating software options

With POSITIP 8000 Demo, you can also simulate characteristics and functions that are dependent on a software option. To do so, you must enable the software option with a license key. The required license key is stored in a license file in the POSITIP 8000 Demo folder structure.

You must read in the license file in order to enable the available software options.



- ► Tap **Settings** in the main menu
- > The product settings are displayed
- ▶ Tap Service
- ▶ Open in succession:
  - Software options
  - Activate options
  - Tap Read license file
- ▶ In the dialog box, select the storage location:
  - Select Internal
  - Select User
- Select the PcDemoLicense.xml license file
- ► Confirm your selection with **Select**
- ► Tap **OK**
- > The license key is activated
- ► Tap **OK**
- > You are prompted to restart the product
- ▶ Perform a restart
- > The functions depending on the software options are available

# 4.4 Selecting the product version (optional)

POSITIP 8000 is available in different versions. These versions differ in their interfaces for connectible encoders:

In the Settings menu, you can select the version that is to be simulated with POSITIP 8000 <code>Demo</code>



► Tap **Settings** in the main menu



- ▶ Tap Service
- ► Tap Product designation
- ► Select the desired version
- > You are now prompted to perform a restart
- > POSITIP 8000 Demo is ready for use in the desired version

# 4.5 Selecting the Application

The demo software allows you to simulate the various applications that the product supports.



Separate instructions are available for the **Turning** application mode. You can find the instructions on the HEIDENHAIN website at **www.heidenhain.com/documentation** 



When you change the unit's application mode, then all of the axis settings will be reset.

## Settings ► Service ► OEM area ► Settings

Parameter	Explanation
Application	The type of application mode; a change becomes active after a restart
	Settings:
	Milling
	Turning
	Default value: <b>Milling</b>

# 4.6 Copying the configuration file

Before you can load the configuration data in POSITIP 8000 Demo, you must first copy the downloaded configuration file **DemoBackup.mcc** to an area that can be accessed by POSITIP 8000 Demo.

- ► Move to the temporary storage folder
- For example, copy the configuration file DemoBackup.mcc to the following folder: C: ➤ HEIDENHAIN ➤ [product name] ➤ ProductsMGE5 ➤ Mom
   ▶ [product abbreviation] ➤ user ➤ User



In order for POSITIP 8000 Demo to access the configuration file **DemoBackup.mcc**, you must retain the following part of the path when you save the file: ▶ **[product name]** ▶ **ProductsMGE5** ▶ **Mom** ▶ **[product abbreviation]** ▶ **user** ▶ **User**.

> The configuration file can be accessed by POSITIP 8000 Demo

# 4.7 Uploading the configuration data



Before you can upload the configuration data, you must first activate the license key.

Further information: "Activating software options", Page 45

In order to configure POSITIP 8000 Demo for use on the computer, you must upload the **DemoBackup.mcc** configuration file.



- ► Tap **Settings** in the main menu
- > The product settings are displayed

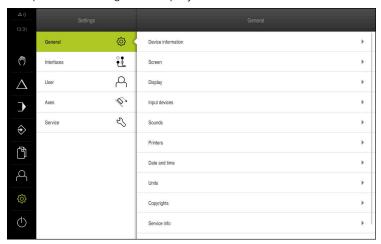


Figure 14: **Settings** menu



- Tap Service
- Open in succession:
  - Back up and restore
  - Restore settings
  - Complete restoration
- ▶ In the dialog box, select the storage location:
  - Internal
  - User
- ▶ Select the **DemoBackup.mcc** configuration file
- ► Confirm your selection with **Select**
- > The settings are applied
- > You are prompted to close the application
- ► Tap **OK**
- > POSITIP 8000 Demo is closed, and the Microsoft Windows window is closed
- ► Restart POSITIP 8000 Demo
- > POSITIP 8000 Demo is now ready for use

5

**Application example** 

## 5.1 Overview

This chapter describes the machining of an example workpiece and will guide you step by step through the unit's different operating modes. You need to carry out the following machining steps for successful production of the flange:

Machining step	Mode of operation
Determine preset 0	Manual operation
Machine a through hole	Manual operation
Machine a rectangular pocket	MDI mode
Machine a fit	MDI mode
Determine preset 1	Manual operation
Machine a bolt hole circle	Programming and program run
Machine a row of holes	Programming and program run



The machining steps described here cannot be completely simulated with POSITIP 8000 Demo. However, you can use the descriptions to familiarize yourself with the most important functions and the user interface.

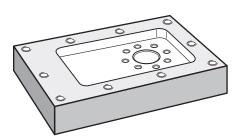


Figure 15: Example workpiece



This chapter does not describe the processing of the outside contour of the example workpiece. It is assumed that the outside contour has already been machined.



For a detailed description of the individual activities, please refer to the "Manual operation" and "MDI mode" chapters as well as the "Programming" and "Program run" chapters in the operating instructions POSITIP 8000.



Make sure that you have read and understood the "Basic operation" chapter before carrying out the actions described below.

Further information: "Basic operation", Page 19

# 5.2 Logging in for the application example

## **User login**

For the application example, the **Operator** user must log in.



- ► Tap **User login** in the main menu
- ▶ If required, log out the user who is currently logged in
- ► Select the **Operator** user
- ► Tap the **Password** input field
- ► Enter the password "operator"



If a password other than the default password has been assigned to the user, ask a **Setup** or **OEM** user for the assigned password.

If the password is no longer known, contact a HEIDENHAIN service agency.

► Confirm entry with **RET** 



► Tap Log in

# 5.3 Requirements

To manufacture the aluminum flange, use a manually operated or NC-controlled machine tool. The following dimensioned technical drawing is available for the flange:

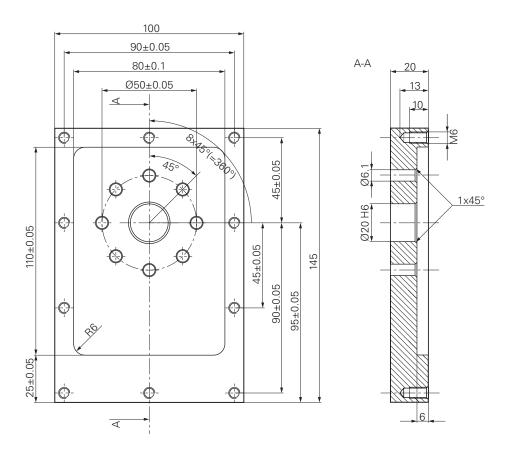


Figure 16: Example workpiece- technical drawing

## **Machine tool**

- The machine tool is switched on
- A pre-processed workpiece blank is clamped on the machine tool

## **Product**

- A spindle axis is configured
- The axes have been homed
- A HEIDENHAIN KT 130 edge finder is available

#### **Tools**

The following tools are available:

- Drill Ø 5.0 mm
- Drill Ø 6.1 mm
- Drill Ø 19.8 mm
- Reamer Ø 20 mm H6
- End mill Ø 12 mm
- Countersink Ø 25 mm 90°
- M6 tap

## **Tool table**

For the example it is presumed that the tools for machining are not yet defined. For each tool used, you must therefore define the specific parameters in the tool table of the product. During subsequent machining you can access the parameters in the tool table via the status bar.



- ► Tap **Tools** on the status bar
- > The **Tools** dialog box appears
- ► Tap Open table
- > The **Tool table** dialog box appears
- ► Tap **Add** 
  - ▶ In the **Tool type** input field, enter the name **Drill 5.0**
  - ► Confirm the entry with **RET**
  - ▶ In the **Diameter** input field, enter the value **5.0**
  - Confirm the entry with **RET**
  - ▶ In the **Length** input field, enter the length of the drill
  - ► Confirm the entry with **RET**
  - $\rightarrow$  The defined  $\varnothing$  5.0 mm drill is added to the tool table
  - Repeat this procedure for the other tools, and use the naming convention [Type] [Diameter]



- ▶ Tap Close
- > The **Tool table** dialog box is closed

# 5.4 Determining the preset (manual operation mode)

Initially you need to determine the first preset. Based on this preset the product then calculates all values for the relative coordinate system. Ascertain the preset with the HEIDENHAIN KT 130 edge finder.

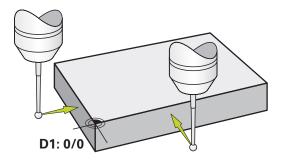


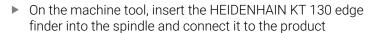
Figure 17: Example workpiece – finding preset D1

## Calling up



- ► Tap **Manual operation** in the main menu
- The user interface for manual operation is displayed

## **Probing the preset D1**





Tap Auxiliary functions in the status bar



- In the dialog, tap Probe edge
- > The **Select the tool** dialog box opens
- ► In the **Select the tool** dialog, activate the **Using touch-probes** option
- ► Follow the wizard's instructions and define the preset by probing in the X direction
- Move the edge finder toward the workpiece edge until the red LED on the edge finder lights up
- > The **Select preset** dialog opens
- Retract the edge finder from the workpiece edge
- ► In the **Selected preset** field, select the preset **0** from the preset table
- ► In the **Set position values** field enter the value **0** for the X direction and confirm with **RET**



- Tap Confirm in the wizard
- > The probed coordinate is loaded in preset **0**
- ► Repeat the procedure and define the preset in the Y direction via probing

#### 5.5 Machining a through hole (manual operation)

In the first machining step you drill the through hole in manual operation mode using the  $\varnothing$  5.0 mm drill. You then drill the through hole with the  $\varnothing$  19.8 mm drill. The values to be entered into the input fields can be taken directly from the dimensioned production drawing.

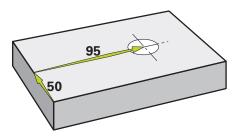


Figure 18: Example workpiece - drilling a through hole

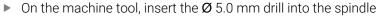
## Calling up

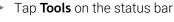


- ► Tap Manual operation in the main menu
- > The user interface for manual operation is displayed

#### 5.5.1 Predrilling the through hole







> The **Tools** dialog box appears





> The associated tool parameters are applied automatically

> The **Tools** dialog box is closed

On the product, set a spindle speed of 3500 rpm

On the machine tool move the spindles as follows:

X direction: 95 mm

Y direction: 50 mm

- Predrill the through hole
- Move the spindle to a safe position
- Keep positions X and Y
- > You have successfully predrilled the through hole





# 5.5.2 Boring the through hole



400

- ightharpoonup On the machine tool, insert the Ø 19.8 mm drill into the spindle
- Tap Tools on the status bar
- > The **Tools** dialog box appears
- ► Tap **Drill 19.8**
- Tap Confirm
  - > The associated tool parameters are applied automatically
  - > The **Tools** dialog box is closed
  - ▶ On the product, set a spindle speed of 400 rpm
  - ▶ Bore the through hole and retract the spindle
  - > You have successfully bored the through hole

# 5.6 Machining a rectangular pocket (MDI mode of operation)

Machine the rectangular pocket in MDI mode of operation. The values to be entered into the input fields can be taken directly from the dimensioned production drawing.

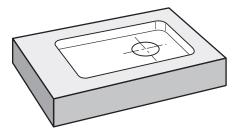


Figure 19: Example workpiece – machining a rectangular pocket

## Calling up



- ► Tap MDI in the main menu
- > The user interface for MDI mode is displayed

## 5.6.1 Defining the rectangular pocket



- ► Tap **Tools** on the status bar
- > The **Tools** dialog box appears
- ► Tap End mill
- Tap Confirm
  - > The associated tool parameters are applied automatically
  - > The **Tools** dialog box is closed
  - Move the tool until it touches the surface of the flange
  - Press and hold the Z axis key in the position display
  - > The product displays 0 with the Z axis
  - ► Tap **Create** on the status bar
  - > A new block is displayed
  - Select the Rectangular pocket block type in the Block type drop-down list
  - Enter the following parameters according to the dimensional data:
    - **Type of machining**: Full-surface machining
    - Clearance height: 10
    - **Depth**: -6
    - X coordinate of center: 80Y coordinate of center: 50
    - Side length in X: 110
    - Side length in Y: 80
    - **Direction**: Clockwise
    - Finishing allowance: 0.2
    - Path overlap: 0.5
  - ▶ If the tool axis is NC-controlled, additionally enter the following parameters:
    - Starting depth: 0.5
    - Plunging depth: 4
    - Finishing allowance for floor: 0.1
    - Feed rate for milling: 800
    - Feed rate for plunging: 260
  - Confirm each entry with RET
  - ► To run the block, tap **END**
  - > The positioning aid is displayed
  - > If the simulation window is active, the rectangular pocket is visualized



## 5.6.2 Milling a rectangular pocket



The values for spindle speed, milling depth and feed rate depend on the end mill's metal-removal rate and the machine tool.

- ightharpoonup On the machine tool, insert the  $m extstyle{0}$  12 mm end mill into the spindle
- ▶ On the product, set the spindle speed to a suitable value



- ► If the product or the machine tool has NC-controlled axes, tap or press the **NC START key**
- Start the machining process—follow the instructions of the wizard
- The product executes the individual steps of the milling operation



- Tap Close
- > Program run is terminated
- > The wizard closes
- > You have successfully machined the rectangular pocket

# 5.7 Machining a fit (MDI mode of operation)

Machine the fit in MDI mode of operation. The values to be entered into the input fields can be taken directly from the dimensioned production drawing.



You should chamfer the through hole before reaming. The chamfer enables a better first cut of the reamer and prevents burr formation.

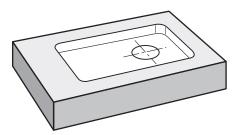


Figure 20: Example workpiece - machining a fit

## Calling up



- ► Tap **MDI** in the main menu
- > The user interface for MDI mode is displayed

#### 5.7.1 Defining the fit



- Tap Tools on the status bar
- > The **Tools** dialog box appears
- ▶ Tap Reamer



- Tap Confirm
- > The associated tool parameters are applied automatically
- > The **Tools** dialog box is closed
- ► Tap **Create** on the status bar
- > A new block is displayed
- ▶ In the **Block type** drop-down list, select the **Hole** block type
- ▶ Enter the following parameters according to the dimensional data:
  - **X coordinate:** 95 ■ Y coordinate: 50
  - **Z coordinate:** drill through
- ▶ If the tool axis is NC-controlled, enter the following parameters:
  - **Z** coordinate: -25
- Confirm each entry with RET
- To run the block, tap END
- > The positioning aid is displayed
- > If the simulation window is active, the position and traverse path are visualized

#### 5.7.2 Reaming the fit





ightharpoonup On the machine tool, insert the  $\varnothing$  20 mm H6 reamer into the



or press the NC START key



- On the product, set a spindle speed of 250 rpm
- Start the machining process—follow the instructions of the wizard



- ▶ Tap Close
- > Program run is terminated
- > The wizard closes
- > You have successfully machined the fit

# 5.8 Determining the preset (manual operation mode)

To align the bolt hole circle and frame of holes you must set the circle center of the fit as the preset. Based on this preset the product then calculates all values for the relative coordinate system. Ascertain the preset with the HEIDENHAIN KT 130 edge finder.

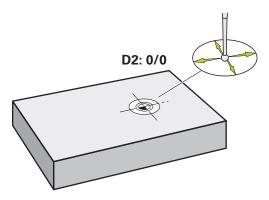


Figure 21: Example workpiece – finding preset D2

## Calling up



- ► Tap Manual operation in the main menu
- > The user interface for manual operation is displayed

## **Probing preset D2**

On the machine tool, insert the HEIDENHAIN KT 130 edge finder into spindle and connect to the product



► Tap Auxiliary functions in the status bar



- Tap Find circle center in the dialog
- > The **Select the tool** dialog box opens
- ► In the **Select the tool** dialog, activate the **Using touch-probes** option
- Follow the instructions of the wizard
- Move the edge finder toward the workpiece edge until the red LED on the edge finder lights up
- > The **Select preset** dialog box opens
- Retract the edge finder from the workpiece edge
- In the Selected preset field, select preset 1
- In the **Set position values** field, enter the value **0** for position value X and position value Y and confirm with **RET**



- ► Tap **Confirm** in the wizard
- > The probed coordinates are loaded in preset 1

## **Activating the preset**



- ► Tap **Presets** on the status bar
- > The **Presets** dialog opens
- ► Tap preset 1
- Tap Confirm
  - > The preset is set
  - > On the status bar, 1 is displayed for the preset

# 5.9 Programming a bolt hole circle and row of holes (programming)

Machine the bolt hole circle and row of holes in Programming mode of operation. You may be able to reuse the program in a small batch production. The values to be entered into the input fields can be taken directly from the dimensioned production drawing.

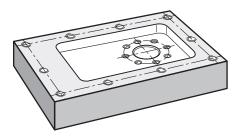


Figure 22: Example workpiece - programming a bolt hole pattern and a row of holes

## Calling up



- ► Tap **Programming** in the main menu
- > The user interface for programming is displayed

## 5.9.1 Creating the program header



- ► Tap Create new program in the program management
- > A dialog box is opened.
- ► In the dialog select the storage location, e.g. Internal/Programs in which you want to save the program
- ► Enter a name for the program
- Confirm the entry with RET
- Tap Create
- A new program containing the **Program header** start block is created
- ▶ In Name enter the name Example
- ► Confirm the entry with **RET**
- ▶ In **Unit for linear values** select the **mm** unit of measure
- The program has been successfully created; you can then begin with programming

## 5.9.2 Programming the tool



- Tap Add block on the toolbar
- > A new block is inserted below the current position
- ▶ In the Block type drop-down list, select the Tool call block type



- ► Tap Tool number
- > The **Tools** dialog box appears
- ► Tap Drill 6.1
- > The associated tool parameters are applied automatically
- > The **Tools** dialog box is closed
- +
- ► Tap **Add block** on the toolbar
- > A new block is inserted below the current position
- ► In the **Block type** drop-down list, select the **Spindle speed** block type
- ► In **Spindle speed**, enter the value **3000**
- Confirm the entry with RET

## 5.9.3 Programming the bolt hole circle



- ► Tap **Add block** on the toolbar
- > A new block is inserted below the current position
- In the **Block type** drop-down list, select the **Bolt hole circle** block type
- Enter the following values:
  - Number of holes: 8
  - X coordinate of center: 0
  - Y coordinate of center: 0
  - **Radius**: 25
  - Starting angle: 0°
  - **Stepping angle**: full circle
  - **Depth**: -25
- ► If the tool axis is NC-controlled, additionally enter the following parameters:
  - Clearance height: 10
  - **Feed rate**: 2000
  - Feed rate for plunging: 600
- ► Confirm each entry with **RET**
- ► Tap **END** to terminate the input process



- ► Tap Save program in the program management
- > The program is saved

## 5.9.4 Programming the tool



- Tap Add block on the toolbar
- > A new block is inserted below the current position
- ▶ In the Block type drop-down list, select the Tool call block type



- ▶ Tap Tool number
- > The **Tools** dialog box appears
- ► Tap Drill 5.0
- > The associated tool parameters are applied automatically
- > The **Tools** dialog box is closed
- → Tap **Add block** on the toolbar
  - > A new block is inserted below the current position
  - ► In the **Block type** drop-down list, select the **Spindle speed** block type
  - ► In **Spindle speed**, enter the value **3000**
  - Confirm the entry with RET

## 5.9.5 Programming the row of holes



- ► Tap **Add block** on the toolbar
- > A new block is inserted below the current position
- In the **Block type** drop-down list, select the **Row of holes** block type
- Enter the following values:
  - X coordinate of 1st hole: -90
  - Y coordinate of 1st hole: -45
  - Holes per row: 4
  - Hole spacing: 45
  - Angle: 0°
  - **Depth**: -13
  - Number of rows: 3
  - Row spacing: 45
  - **Fill mode**: bolt hole circle
- ▶ If the tool axis is NC-controlled, additionally enter the following parameters:
  - Clearance height: 10
  - **Feed rate**: 2000
  - Feed rate for plunging: 600
- ► Confirm each entry with **RET**
- ► Tap Save program in the program management
- > The program is saved



## 5.9.6 Simulating program run

After you have successfully programmed the bolt hole circle and row of holes, you can simulate how the program will run by means of the simulation window.

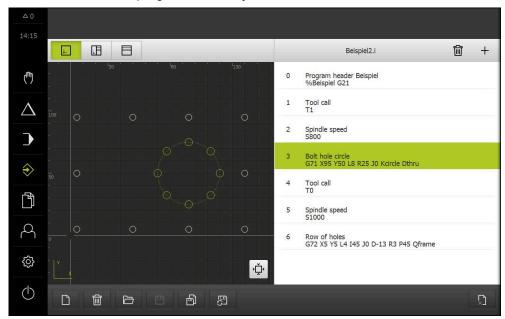


Figure 23: Example workpiece - simulation window



- ► Tap Simulation window
- > The simulation window is displayed
- Tap each program block, one after the other
- The tapped machining step is shown in color in the simulation window
- ► Check the view for programming errors, e.g. tool path intersections of holes
- > If there are no programming errors you can machine the bolt hole circle and row of holes

# 5.10 Machining a bolt hole circle and row of holes (Program run)

You have defined the single machining steps for bolt hole circle and row of holes in a program. You can execute the created program in Program run.

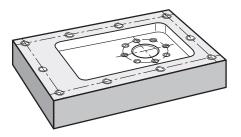


Figure 24: Example workpiece - drilling a bolt hole pattern and a row of holes

## 5.10.1 Opening the program





- > The user interface for Program Run is displayed
- ► Tap **Open program** in the program management
- > A dialog box is opened.
- Select the Internal/Programs storage location in the dialog
- ► Tap the file Example.i
- ► Tap **Open**
- > The selected program is opened

## 5.10.2 Running the program



lacktriangle On the machine tool, insert the  $oldsymbol{arphi}$  6.1 mm drill into the spindle

Tap NC START on the program control

or

- ▶ On the machine tool: Press the **NC START** key
- > The product selects the first tool call block of the program
- > The wizard displays the relevant instructions
- ► Tap **NC START** again to begin machining

or

- ▶ On the machine tool: Press the **NC START** key
- > The spindle speed is set and the first machining block for bolt hole circle is selected
- > The single steps of the bolt hole circle machining block are displayed
- ► Tap **NC START** to move the axis

or

- ▶ On the machine tool: Press the **NC START** key
- > A movement is executed
- Depending on the machine tool, carry out user intervention, e.g. manually move the Z axis when drilling through





- Call the next step of the bolt hole circle machining block with Next
- > The next step is called
- Tap NC START to execute the next movement

or

- ▶ On the machine tool: Press the **NC START** key
- ▶ Follow the instructions of the wizard
- After executing all steps in the bolt hole circle machining block, tap Next program step
- > The next machining block, row of holes, is selected
- The single steps of the row of holes machining block are displayed
- ightharpoonup On the machine tool, insert the  $\varnothing$  5.0 mm drill into the spindle
- Repeat the process for the row of holes machining block
- ► After drilling the row of holes tap **Close**
- > Machining is terminated
- > The program is reset
- > The wizard is closed





6

**ScreenshotClient** 

## 6.1 Overview

The standard installation of POSITIP 8000 Demo also contains the ScreenshotClient program. With ScreenshotClient, you can take screenshots of the demo software or the unit.

This chapter describes how ScreenshotClient is configured and used.

## 6.2 Information about ScreenshotClient

With ScreenshotClient, you can take screenshots of the active screen of the demo software or the unit from a computer. Before taking a screenshot, select the desired user interface language, as well as the file name and the location where you want to store the screenshots.

ScreenshotClient creates image files of the desired screen:

- In .PNG format
- With the configured name
- With the appropriate language code
- With the time information of year, month, day, hour, minute, and second

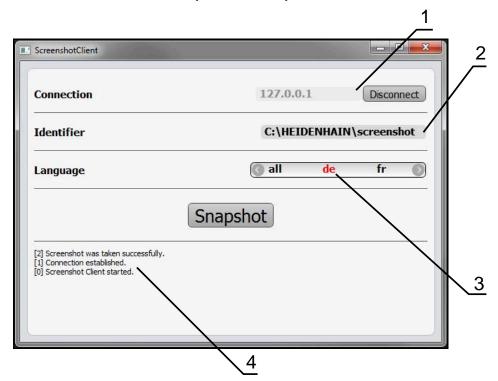


Figure 25: ScreenshotClient user interface

- 1 Connection status
- 2 File path and file name
- 3 Language selection
- 4 Status messages

# 6.3 Starting ScreenshotClient

- ▶ Select in succession in Microsoft Windows:
  - Start
  - All programs
  - HEIDENHAIN
  - POSITIP 8000 Demo
  - ScreenshotClient
- > ScreenshotClient is started:



Figure 26: ScreenshotClient has been started (not connected yet)

> You can now connect ScreenshotClient with the demo software or the product

# 6.4 Connecting ScreenshotClient with the demo software



Before establishing a connection with ScreenshotClient, first start the demo software or switch on the unit. Otherwise ScreenshotClient will show the status message **Connection close.** when trying to connect.

- ► Start the demo software if you have not already done so **Further information:** "Starting POSITIP 8000 Demo", Page 24
- ► Tap Connect
- > A connection with the demo software is established
- > The status message is updated
- > The **Identifier** and **Language** input fields become active

# 6.5 Connecting ScreenshotClient with the unit

**Prerequisite:** The network must be configured on the device.



For detailed information on configuring the network at the unit, please refer to the "Setup" chapter in the operating instructions of POSITIP 8000.



Before establishing a connection with ScreenshotClient, first start the demo software or switch on the unit. Otherwise ScreenshotClient will show the status message **Connection close.** when trying to connect.

- Switch on the unit if you have not already done so
- ► Enter the **IPv4 address** of the interface in the **Connection** input field. You will find the address in the device settings under:

Interfaces ► Network ► X116

- ► Tap Connect
- > A connection with the unit is established
- > The status message is updated
- > The **Identifier** and **Language** input fields become active

# 6.6 Configuring ScreenshotClient for taking screenshots

Once you have started ScreenshotClient, you can make the following configurations:

- Location at which screenshots are stored, and what the file names are
- User interface language in which the screenshots are created

## 6.6.1 Configuring the storage location and file name for screenshots

By default, ScreenshotClient saves screenshots to the following storage location:

C: ► HEIDENHAIN ► [product designation] ► ProductsMGE5 ► Mom ► [product code] ► sources ► [file name]

You can define a different storage location, if necessary.

- ► Tap the **Identifier** input field
- ► Enter the path to the storage location and the name for the screenshots into the **Identifier** input field



Use the following syntax to enter the path and file name for screenshots: **[drive]:\[folder]\[file name]** 

> ScreenshotClient will save all screenshots to the storage location entered

## 6.6.2 Configuring the user interface language of screenshots

The **Language** input field shows all of the user interface languages available for the demo software or the unit. Once you have selected a language code, ScreenshotClient will take screenshots in the corresponding language.



The user interface language you are using in the demo software or on the unit does not have any effect on the screenshots. Screenshots are always created in the language that you have selected in ScreenshotClient.

## Screenshots in the desired user interface language

To take screenshots in a desired user interface language



- Use the arrow keys to select the desired language code in the Language input field
- > The selected language code is shown in red
- ScreenshotClient creates the screenshots in the desired user interface language

## Screenshots of all available user interface languages

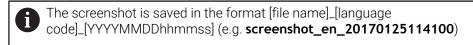
To create screenshots in all available user interface languages



- ▶ Use the arrow keys to select **all** in the **Language** input field
- > The **all** language code is shown in red
- ScreenshotClient creates the screenshots in all available user interface languages

## 6.7 Creating screenshots

- ▶ In the demo software or on the unit, call the view from which you would like to take a screenshot
- Switch to ScreenshotClient
- ▶ Tap Snapshot
- > The screenshot is created and saved to the configured storage location



> The status message is updated:



Figure 27: Screenshot Client after screenshot has been created successfully

# 6.8 Exiting ScreenshotClient

- ► Tap **Disconnect**
- > The connection to the demo software or the unit is terminated
- ► Tap Close
- > ScreenshotClient is exited

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# **HEIDENHAIN**

### DR. JOHANNES HEIDENHAIN GmbH

Dr.-Johannes-Heidenhain-Straße 5

83301 Traunreut, Germany

② +49 8669 31-0

[AX] +49 8669 32-5061

E-mail: info@heidenhain.de

Technical support

Measuring systems +49 8669 32-1000

E-mail: service.ms-support@heidenhain.de

NC support +49 8669 31-3101

E-mail: service.nc-support@heidenhain.de

NC programming +49 8669 31-3103

E-mail: service.nc-pgm@heidenhain.de

PLC programming +49 8669 31-3102

E-mail: service.plc@heidenhain.de

APP programming +49 8669 31-3106 E-mail: service.app@heidenhain.de

www.heidenhain.de

