

SIEMENS

SINUMERIK Operate

DXF-Reader Fundamentals

**SINUMERIK
828D/840D sl**

Edition 2016.07
Training Manual

SINUMERIK

DXF-Reader Fundamentals

Valid for:

SINUMERIK 828D	SW4.7
SINUMERIK 840D sl	SW4.7

Start

M703
DXF-Reader

End

Contents

Module Description:

This module describes working with the DXF Reader on a SINUMERIK.

Module Objective:

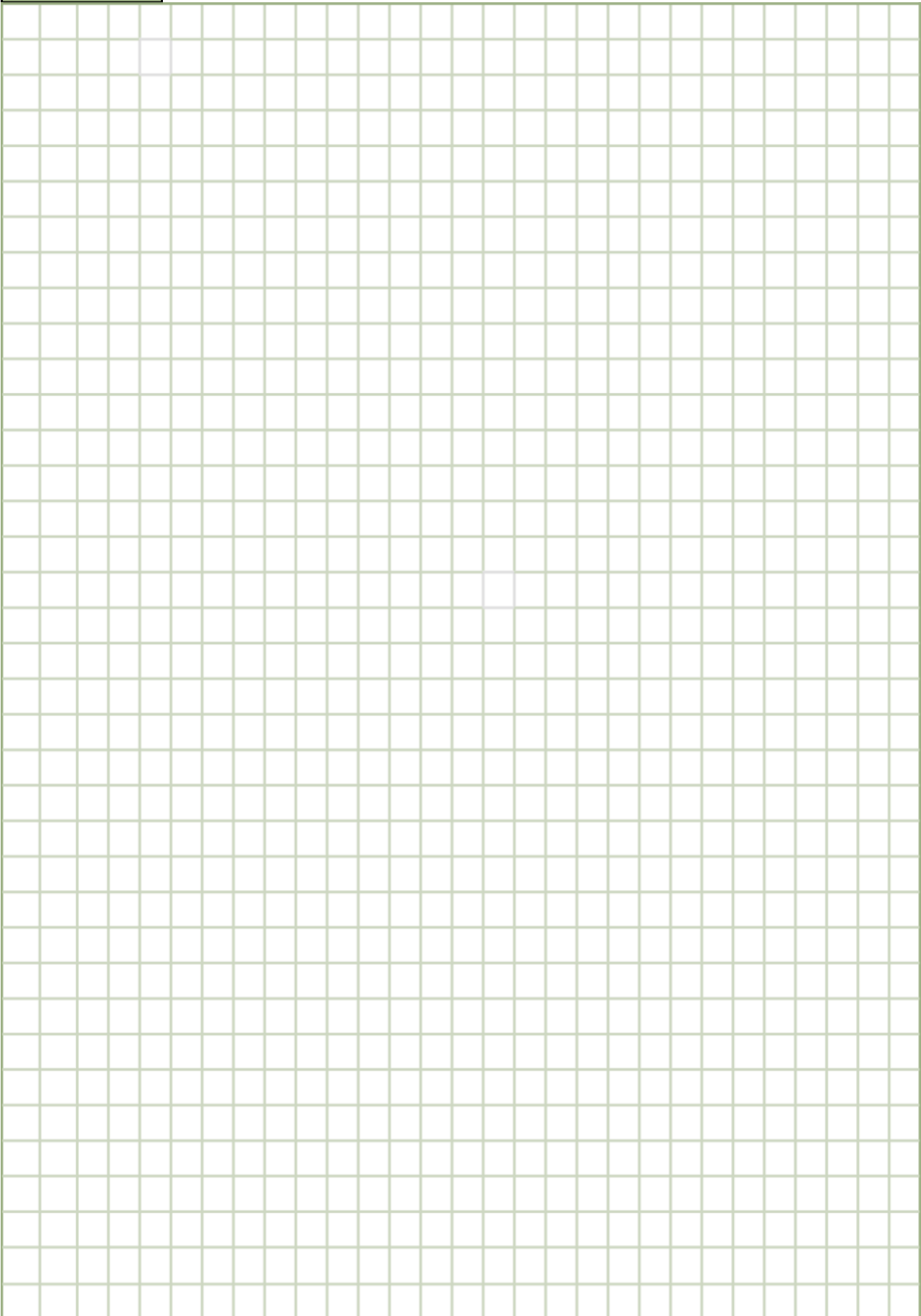
Using a sample task, you learn about the functions contained in the "DXF Reader" and how they are used

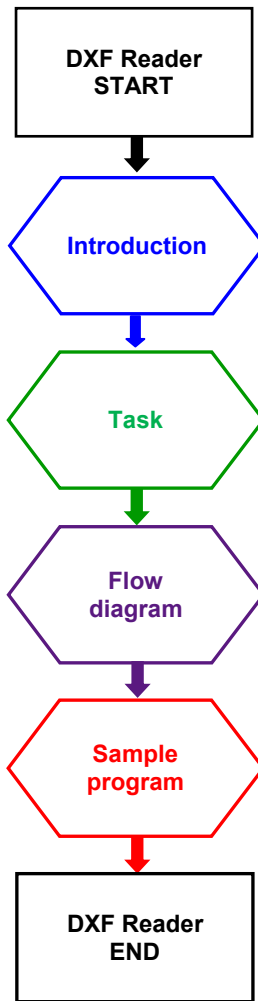
Content:

DXF Reader general

Contour creation

Drilling pattern





Notes

Introduction

The DXF Reader enables lines (straight lines, curves, arcs) from a drawing to be converted to positional data for a CNC machine tool (G1, G2, G3).

Various target systems can be selected.

- ShopMill/ShopTurn
- G code (programGuide)

This positional data can be created directly from a drawing with the DXF Reader in ".dxf" format.

DXF is a standard CAD format. It is system-wide and is used for data exchange between different manufacturers of CAD systems.

The main advantage of generating positioning commands directly from a drawing for the CNC machine tool, is that programming errors through incorrect input are excluded and complicated contour transitions are transferred simply from the drawing to the control.

DXF formats do not have dimensions. For this reason, the operator must know the dimension unit (e.g. millimeter or inch) and the scaling factor of the drawing.

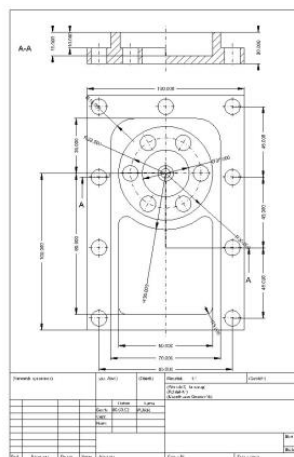
Task

Description of the task

A DXF drawing is to be imported into the DXF Reader.

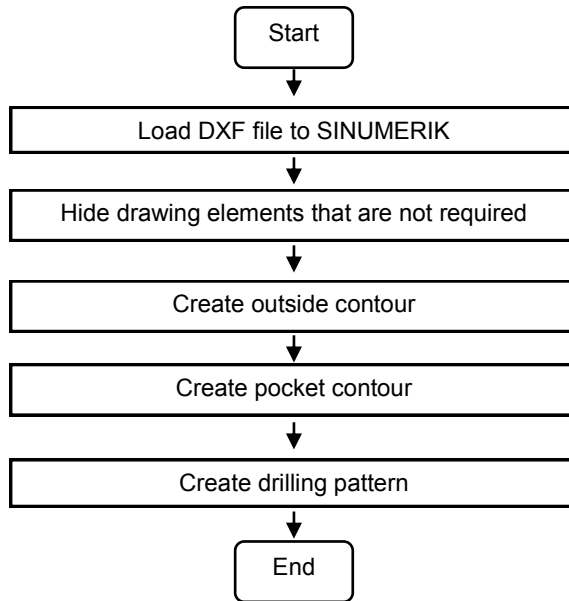
Elements that are not required, such as dimensions and drawing frames, are to be hidden and the contours created with the DXF Reader.

The contours, outside contour, pocket and drilling pattern are to be transferred to a ShopMill program.



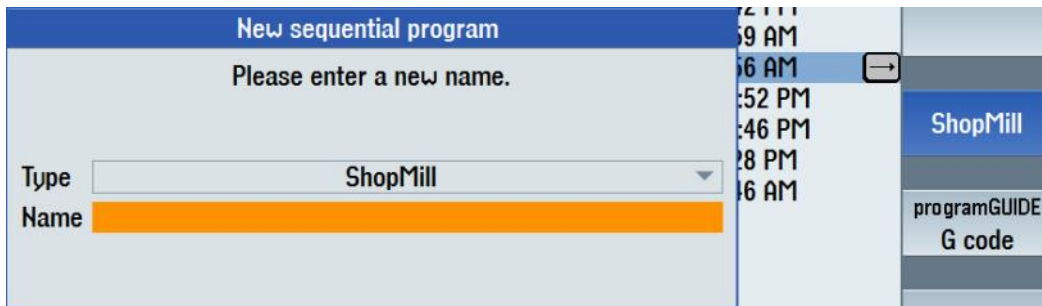
Notes

Flow diagram



Sample program

After creating a new ShopMill program

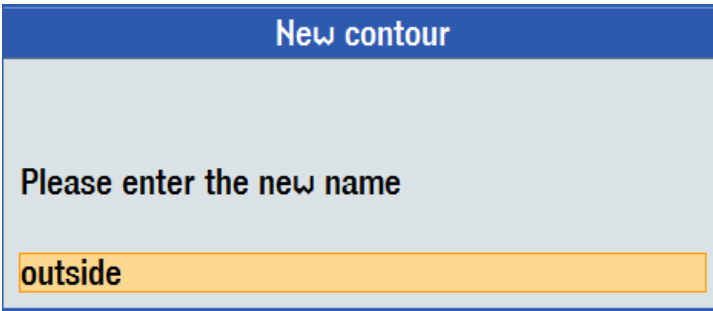


and pressing the softkeys,

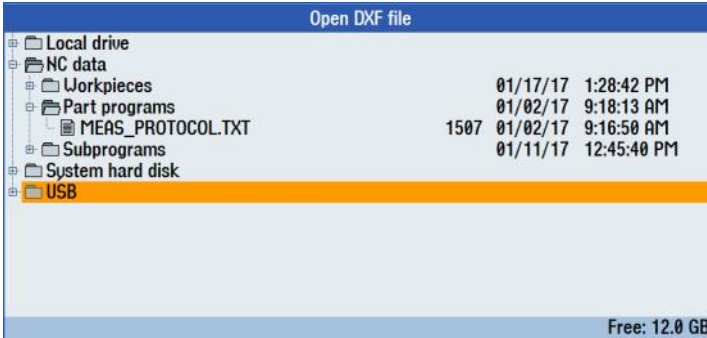


Notes

the name for a contour is entered.



The editor then opens with the directories.



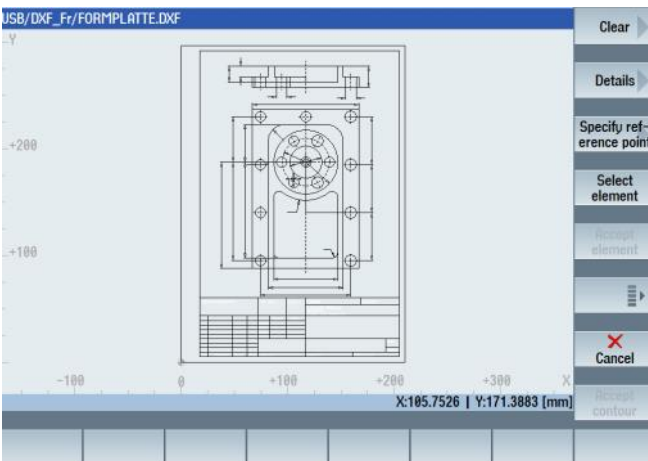
After selecting the marked DXF file



and pressing the softkey,



this DXF file is displayed on the control.

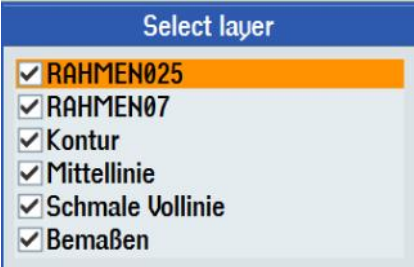


Notes

In the next step, the drawing is cleared of all the elements that are not required for the outside contour.
Pressing the softkeys,

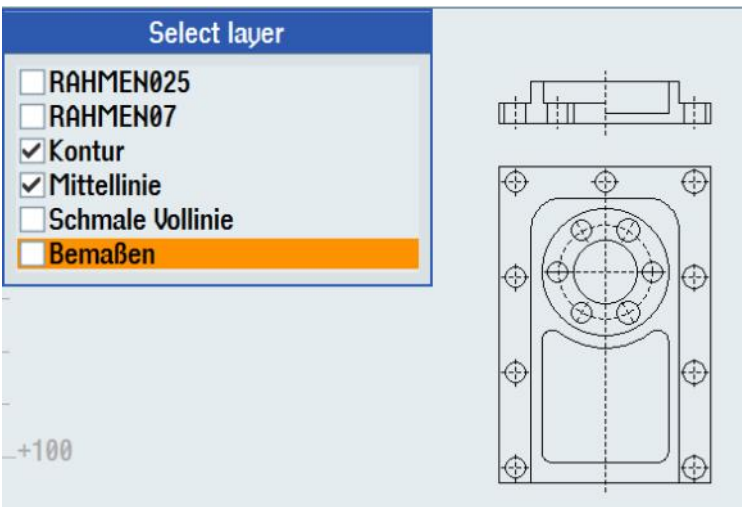


opens a field with the currently displayed layers.



All layers that are not required can now be deactivated.
This option assumes that all drawing elements are on the correct layers.
If not, elements must be selected individually.

When a layer is deactivated, the display of the drawing is refreshed immediately.



Only the "Contour" and the "Center line" layers are required for the next steps.
The selection is accepted with the softkey.



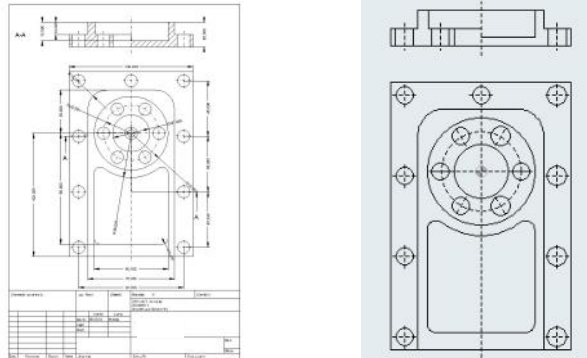
Notes

In the next step, the reference point of the drawing is defined.
After pressing the softkey,

Specify reference point

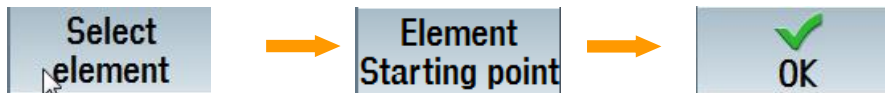
the best reference point is selected for the following steps.
After pressing

Circle center

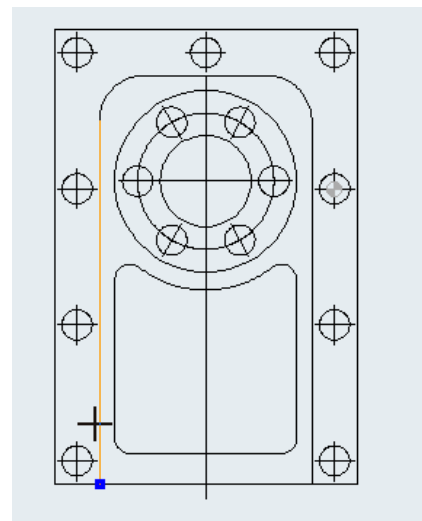


the reference point is also where it is on the drawing. All the following dimensions refer to this point.

In the next step, the elements are selected that form the contour.
After pressing



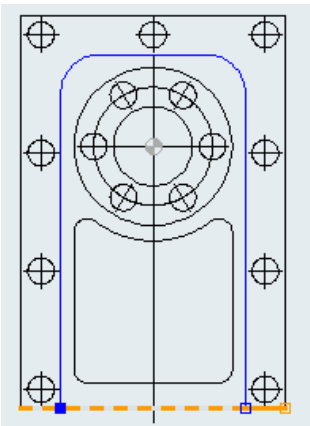
the start element is selected with the cursor.
The starting point can be selected arbitrarily.



Notes

Each of the following elements is displayed in color as a proposal and confirmed with the softkey.

Accept element

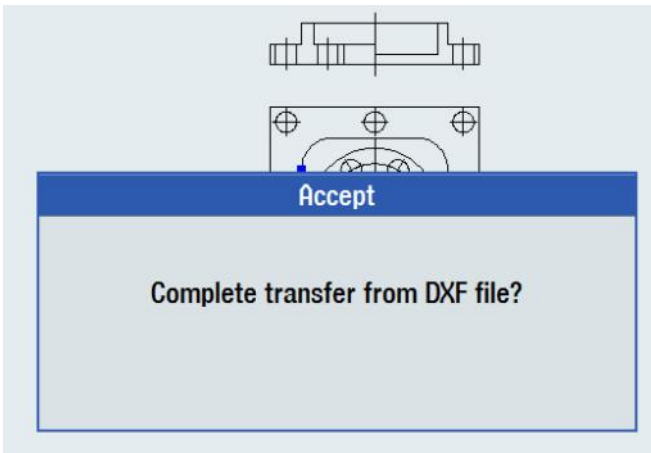


After the last contour element, the contour is accepted by pressing the

Accept contour

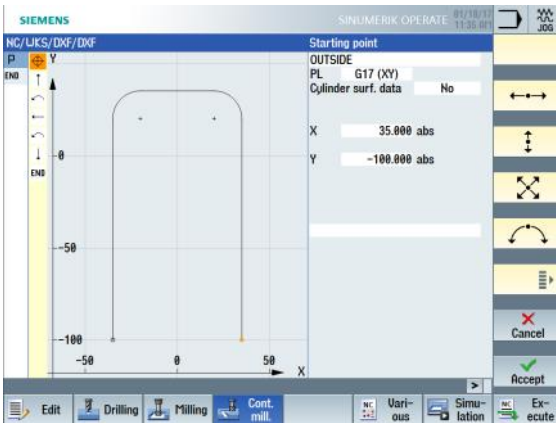
softkey,

and completed by pressing



Notes

The described contour is now in the contour calculator of ShopMill and can be edited like every other ShopMill contour.



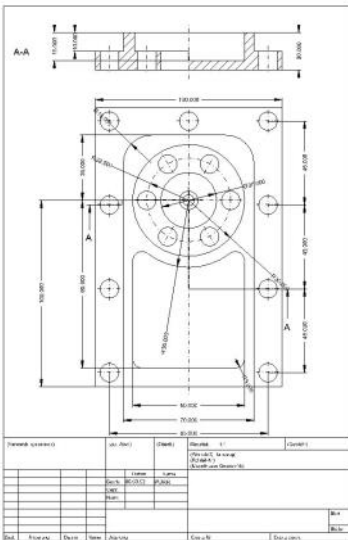
After pressing the softkey,
it is taken into the machining plan.



P	Program header	G54 Block
Contour		OUTSIDE
END	End of program	

The contour has been created.

In the next step, the contour for the pocket is to be created.

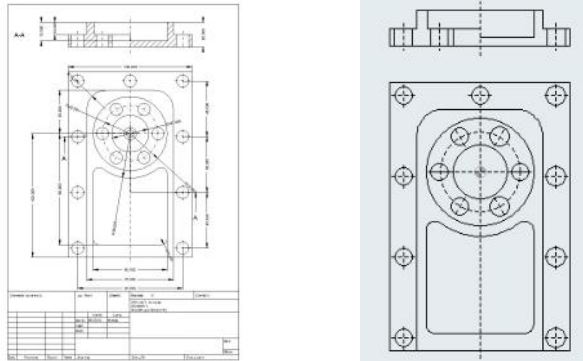


Notes

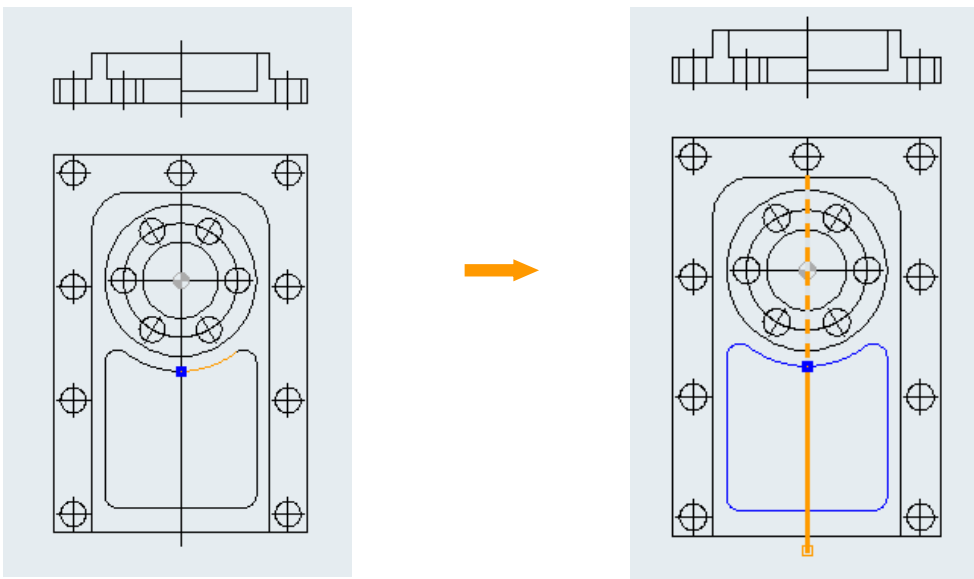
By pressing the softkeys



and defining a new contour name, the same drawing and the same reference point are selected.



The starting point of the pocket is then selected and the element accepted.

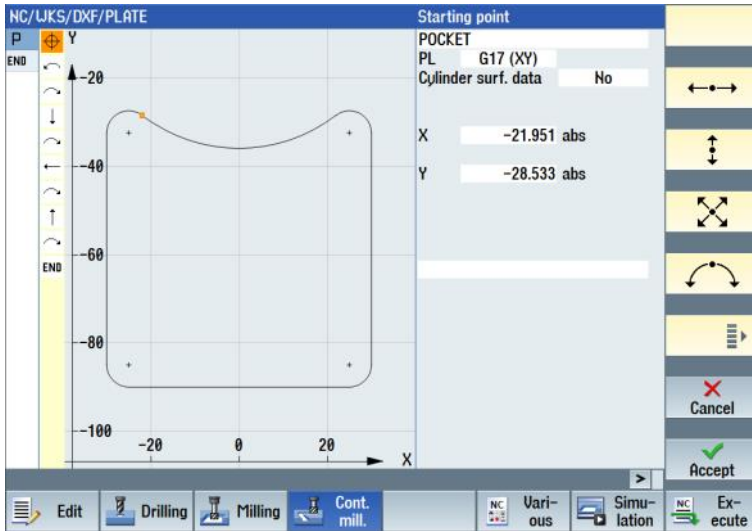


If it is a closed contour in the contour, it can be taken over automatically.



Notes

It is now available as contour in the contour calculator of ShopMill



and visible as contour with the contour name in the machining plan.

P	Program header	G54 Block
	Contour	OUTSIDE
	Contour	POCKET
END	End of program	

In the last step, the holes are to be taken as drilling positions from the drawing.

By pressing



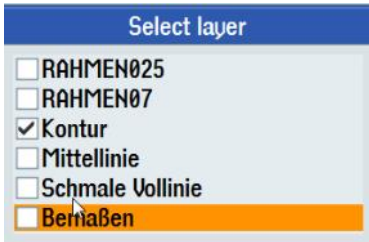
the DXF file can also be selected here by pressing



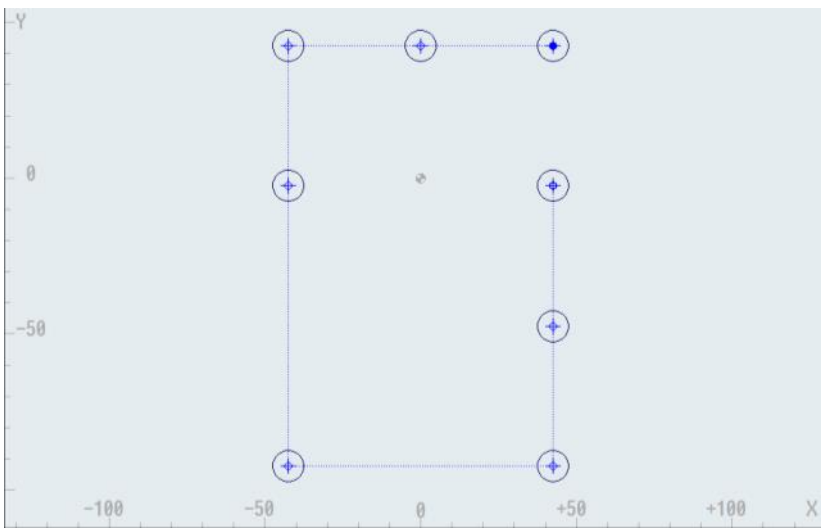
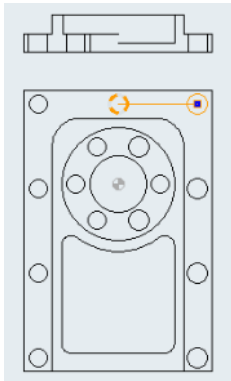
USB			
DXF_Dr		10.01.17	12:45:00
DXF_Fr		10.01.17	12:41:52
FORMPLATTE.DXF	522729	10.10.16	07:13:56

Notes

After deactivating the layers (the center line also)



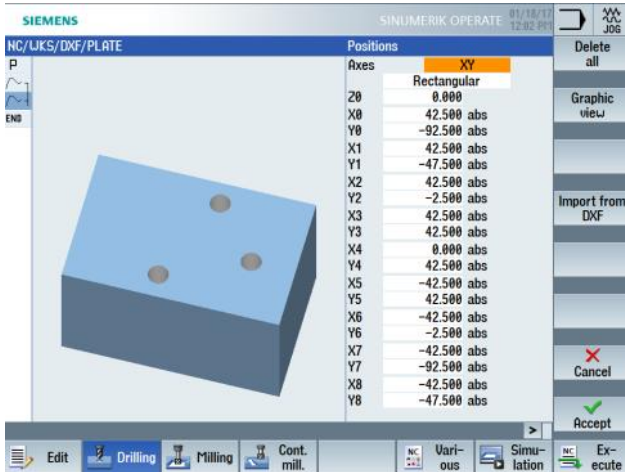
and selecting the known reference point, the holes can be selected as elements and accepted.



→ Accept drilling points

Notes

All hole center points have been determined in relation to the reference point and



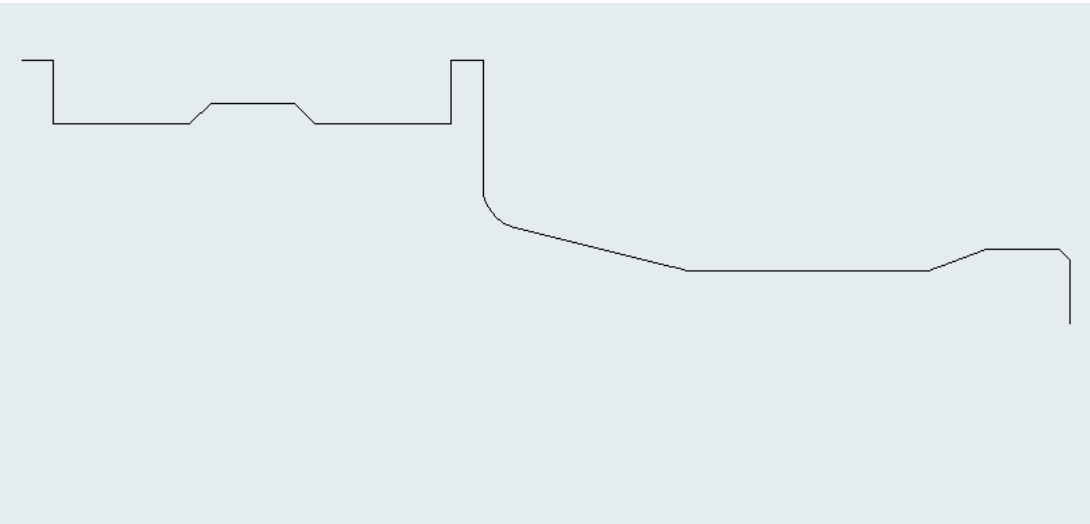
taken into the machining plan as position pattern.

P	Program header	G54 Block
	Contour	OUTSIDE
	Contour	POCKET
	Ø01: Positions	Z0=0 X0=42.5 Y0=-92.5 X1=42.5 Y1=-47.5 X2=42.5
END	End of program	

The program can now be completed with the contours and positions as usual.

Additional task:

A DXF drawing is to be imported into the DXF Reader. Elements that are not required, such as dimensions and drawing frames, are to be hidden and the contours created. The contour as program for a turning machine is to be created as G code program.



Notes