

Instructions

eluCad Software

Version 3.0.0 en Translation of the original instructions. Retain for future use.





elusoft GmbH Breitwasenring 4 D 72135 Dettenhausen

Phone +49(0)7157 526-6500 Fax +49(0)7157 526-6526

info@elusoft.de www.elusoft.de



This document was produced by the Technical Documentation department at elusoft GmbH.

All rights over this documentation, especially the right of reproduction and dissemination as well as translation are held by elusoft GmbH, including with regard to patent applications. No part of this documentation may be reproduced without the prior written consent of elusoft GmbH. The same applies to processing, reproduction or dissemination of this document with the use of electronic systems. Errata and technical modifications reserved.

elusoft GmbH cannot be held liable for any errors in this documentation. No liability will be accepted, subject to this being legally permissible, for direct and indirect damages associated with the delivery or use of this documentation.



Table of contents (TOC)

1		Quick Guide - step by step guide to machining	1
	1.1	Tools	1
	1.1.1	Tool selection, step 1	1
	1.1.2	Setting up a tool, step 2	3
	1.1.3	Tool changer, step 3	5
	1.2	Creating a job	6
	1.2.1	Open existing job	7
	1.2.2	Create new job	8
	1.2.2.1	Create a new profile	8
	1.2.2.1.1	Creating a profile manually	9
	1.2.2.1.2	Importing a profile in DXF format	12
	1.3	Machining program - View	16
	1.3.1	Creating a machining operation	16
2		Using the CAM software	19
	2.1	Profile data	19
	2.1.1	Creating a profile	19
	2.1.1.1	Creating a profile manually	20
	2.1.1.2	Importing a profile in DXF format	23
	2.1.1.2	Copying a profile	25
	2.1.1.3	Modifying a profile	26
	2.1.1.4	Support blocks	20
	2.1.1.5	Editing the support block geometry data	29
	2.1 .1.3.1 2.2	Machining task data	30
	2.2.1 2.2.2	Creating a new machining task manually	30 33
	2.2.2	Machining task examples - eluCAM coordinate system	
	2.2.2.1	Creating a new machining task at TOP	33 35
	2.2.2.2	Creating a new machining task at FRONT	35 37
	2.2.2.3	Generate new machining task at BACK	37 39
	2.2.2.4	Generating new LEFT and RIGHT machining tasks	39 42
	2.2.2.5	New machining task from TOP with Y-value picking	44
	2.2.2.0	New machining task from FRONT with Z-value picking	44
	2.2.2.7	Create a new machining task with disk milling cutter	50
	2.2.2.8.1	Creating a new machining task with disk milling cutter	50
	2.2.2.0.1	left/rear	53
	2.2.2.8.2	Create a new machining operation with disk milling cutter	
		right/front	55
	2.2.2.9	Creating a new machining task on a free side	58
	2.2.2.10	Creating a new machining task for a free side using picking	60
	2.2.2.11	Creating a new machining task as a machining series	62
	2.2.2.12	Creating a new machining task with combo-thread	64
	2.2.2.13	Creating a new machining task with a countersink	66
	2.2.2.14	New machining task, drilled hole with countersink	68
	2.2.2.15	Creating a new machining task with a saw cut at the beginning of the part	70
	2.2.2.16	Creating a new machining task with a saw cut at the end of the part	72
	2.2.2.17	Creating a new machining task with a saw cut	74
	2.2.2.18	Creating a new machining task with a saw cut and anadditional notch	76
	2.2.2.19	Creating a machining task with notching	78
	2.2.3	Depth table	80
	2.2.3.1	Creating a depth table manually	81
	2.2.3.2	Creating a depth table automatically	84



2.2.4	Groups / Macros	86
2.2.4.1	Creating a new machining task as a group	87
2.2.4.2	Saving a new machining task as a macro	90
2.2.4.3	Creating a new machining task with a macro	93
2.2.4.4	Creating a multi-sided group	95
2.2.4.5	Converting a macro to a group	98
2.2.5	Manual changing of working orientation	100
2.2.6	Machining task conditions	101
2.2.7	Machine conditions for machining tasks	102
2.2.8	Using copy and insert in profile machining tasks	103
2.2.9	Modifying several values in profile machining tasks	104
2.2.10	Using drag and drop in profile machining tasks	105
2.2.11	Performing the filter function in profile machining tasks	106
2.2.12	Performing automatic priority assignment in profile machining tasks	107
2.2.13	Free forms / Milling contours	108
2.2.13.1	Creating a free form without polar coordinates	109
2.2.13.1.1	Example of a free form circle	111
2.2.13.1.2	Example of a free form rectangle	114
2.2.13.2	Creating a free form with polar coordinates	119
2.2.13.3	Importing a free form	121
2.2.14	Creating a variables table	123
	Index	125



1 Quick Guide - step by step guide to machining

The following chapters provide an easy and quick guide that will enable you to quickly carry out a machining operation.

This quick guide is subdivided into the following chapters:

- Selecting a tool
- Creating a job 6
- Machining program 16

1.1 Tools

1.1.1 Tool selection, step 1

In order to be able to carry out a machining operation correctly, the tool being used must be selected and assigned

To select a tool, follow the steps below:

1. In the menu bar under **VIEW**, open the**TOOLS** menu.

ool packages: SBZ131EM ▼			Filter:		Tool database: Options		
			•				
MP	Name	Туре	Diameter	Side	Comment	Order number	
1	F92	NDISK	92.00	top			
2	F8	MILL	8.00	top			
3	B4.1	DRILL	4.10	top			
5	F5	MILL	5.00	top			
6	B3.5	DRILL	3.50	O,F			
7	B7.1	DRILL	7.10	top			
8	F10	MILL	10.00	top			
9	WKV3	MILL	3.00	front			
10	WKH3	MILL	3.00	back			
11	WKV8	MILL	8.00	front			
12	WKH8	MILL	8.00	back			

- 2. The TOOL SELECTION menu will open.
- 3. Press the NEW button to open the NEW TOOL menu.
- 4. Press the ASSISTANT button to open the TOOLS menu.



5. Press the **NEXT** button to open the **SELECTION** menu.

Name	Туре	D	L	Comment	~	
C10 0-14	MILL	10.00	80.00	Einzahnfräser 1	" —	
C10.0-14D	MILL	10.00	92.00	Fräser 10x14m	=	
C10 0-14R	MILL	10.00	120.00	Finzahnfräser 1	=	
C10.0-22D	MILL	10.00	100.00	Fräser 10x22m		
C10.0-22DL	MILL	10.00	120.00	Fräser 10x22m		
C10.0-22R	MILL	10.00	70.00	Einzahnfräser 1		
C10.0-30R	MILL	10.00	100.00	Einzahnfräser 1		
C10.0-30RM	MILL	10.00	80.00	Einzahnfräser 1		
C12.0-14	MILL	12.00	80.00	Einzahnfräser 1		
C12.0-16D	MILL	12.00	100.00	Fräser 12x16m		
C12.0-20D	MILL	12.00	80.00	Fräser 12x20m		
C12.0-22D	MILL	12.00	70.00	Fräser 12x22m		10
C12.0-26F	MILL	12.00	85.00	Fräser 12x26m		
C14.0-20D	MILL	14.00	80.00	Fräser 14x20m		100 A
C16.0-20D	MILL	16.00	115.00	Fräser 16x20m		
C16.0-5D	MILL	16.00	78.00	Fräser 16x5mm		
C20.0-14D	MILL	20.00	70.00	Fräser 20x14m		
C20.0-14DL	MILL	20.00	90.00	Fräser 20x14m	Ŧ	

- 6. Select the tool you want from the list.
- 7. Press the **NEXT** button to go to the following step.



1.1.2 Setting up a tool, step 2

In order to be able to use a tool correctly, the holder that will be used needs to be selected and assigned.

In order to set up the tool that you want to use, follow the steps below:

1. The **CREATE TOOL** menu will open. This menu is used to assign the tool's length, the machine being used, and the tool holder being used.

value here. Total length: Machine:	tal length T of the mounted tool on the machine and ente T 47 mm nt or anglehead for the tool. Selection Selection	
--	--	--

2. The tool length must be measured with the depth gauge. The measured total length comprises the tool holder and the clamped tool!

When performing a measurement on the machining tool, please note that sharp tool blades pose an increased risk of injury!

•	The tool should should not be to unclamped too widely in order to prevent vibrations during machining. Vibrations can give rise to imprecise machining or damage the tool or the machine.
1	The total length has to be measured each time a tool is clamped into the tool holder!
	This value must always be entered or it will be impossible to perform the following steps!

- 3. Enter the measured length into the TOTAL LENGTH input field.
- 4. In the **MACHINE** drop-down menu, press the votion to select the machine model you will be using.
- 5. Select the holder or angle head you will be using:
 - Holder: Press the SELECTION button to open the FITTINGS menu.
 - Angle head: Press the SELECTION button to open the ANGLE HEADS menu.



6. In the menu that opens, select the holder or angle head you will be using.

136 35 08 18 118 35 08 00 118 35 08 01 118 35 08 02 118 35 08 02 118 35 08 03 130 20 12 00 130 20 12 00 EM 130 20 12 01 EM	D/D1 63/27	L/L1		Pr	
136 35 08 18 118 35 08 00 118 35 08 01 118 35 08 02 118 35 08 02 118 35 08 03 130 20 12 00 130 20 12 00 EM 130 20 12 01 EM		1/11			eview:
118 35 08 00 118 35 08 01 118 35 08 02 118 35 08 03 118 35 08 03 130 20 12 00 130 20 12 00 EM 130 20 12 01 EM	63/27	Let Le 1	Comment	<u> </u>	
118 35 08 01 118 35 08 02 118 35 08 02 130 20 12 00 130 20 12 00 EM 130 20 12 01 EM		98/44.5	Spannfutter 077 L97		
118 35 08 02 118 35 08 03 130 20 12 00 130 20 12 00 EM 130 20 12 01 EM	63/44	109.5/26	Schnellspannfutter		
118 35 08 03 130 20 12 00 130 20 12 00 EM 130 20 12 00 EM 130 20 12 01 130 20 12 01 EM	63/46	65/26	Spannfutter ER32 2		
130 20 12 00 130 20 12 00 EM 130 20 12 01 EM 130 20 12 01 EM	63/27	97/40	Spannfutter 077 L97		
130 20 12 00 EM 130 20 12 01 130 20 12 01 EM	63/27	97/40	Spannfutter 077 L97	=	
130 20 12 01 130 20 12 01 EM	68/27	135/108	Schnellaufspindel		and the second s
130 20 12 01 EM	68/27	171.4/145.7	Schnellaufspindel		
	80/50	130/98	Langsamlaufspindel		All statements
4 00.05.00.00	80/50	172/129	Langsamlaufspindel		
130 35 08 00	50/20	92.5/88	Schnellspannfutter		
130 35 08 00 EM	74/47	136/46	Schnellspannfutter		The second se
130 35 08 01	40/50	104/81	Spannfutter		
130 35 08 01 EM	40/50	152/128	Spannfutter ER32		
130 35 08 04	46/50	146/88	ER32 Spannfutter		
130 35 08 04 EM	46/50	192/134	ER32 Spannfutter a		
130 35 08 05	44/44	145/113	Schnellspannfutter		
130 35 08 05 EM	74/44	192/46	Schnellspannfutter		
130 35 08 06	40/27	139.5/132	Aufnahme Scheiben		
	74/40	185.5/139.5	Aufnahme Scheiben	-	
100.05.00.00	10,007	110 1107	1 4 1 4 1 1		
OK Cancel					

- 7. Press the **OK** button to apply your selection and close the menu.
- 8. Press the **FINISH** button to apply your selection. The **NEW TOOL** menu will be shown again.

ol p	ackages:		Filter:		Tool da	Tool database:		
BZ1	31EM	•	•		•	Opt	ions	
۱P	Name	Туре	Diameter	Side	Comment		Order number	
	F92	NDISK	92.00	top				
	F8	MILL	8.00	top				
	B4.1	DRILL	4.10	top				
	F5	MILL	5.00	top				
	B3.5	DRILL	3.50	O,F				
	B7.1	DRILL	7.10	top				
	F10	MILL	10.00	top				
	WKV3	MILL	3.00	front				
0	WKH3	MILL	3.00	back				
1	WKV8	MILL	8.00	front				
2	WKH8	MILL	8.00	back				

9. You can check the information for the new tool once again in the **NEW TOOL** menu.



1.1.3 Tool changer, step 3

In order to be able to perform the machining operation, the appropriate tools must be activated in the machine's tool changer. Depending on the machine type and features, there may be multiple magazines in the **TOOL CHANGER**.

In order to activate the tools that you want to use, follow the steps below:

1. The **NEW TOOL** menu shows the relevant input and selection fields.

Fool packages:			Filter:		Tool database:		
SBZ1	31EM	•	•		•	Options	
MP	Name	Туре	Diameter	Side	Comment	Order number	
1	F92	NDISK	92.00	top			
2	F8	MILL	8.00	top			
3	B4.1	DRILL	4.10	top			
5	F5	MILL	5.00	top			
6	B3.5	DRILL	3.50	O,F			
7	B7.1	DRILL	7.10	top			
8	F10	MILL	10.00	top			
9	WKV3	MILL	3.00	front			
10	WKH3	MILL	3.00	back			
11	WKV8	MILL	8.00	front			
12	WKH8	MILL	8.00	back			

- 2. Select the **GENERAL** tab on the menu.
- 3. Enter the position in the machine's tool changer into the **MAGAZINE POSITION** input field.
- 4. In the **SIDE** field, enable the appropriate selection fields in order to define the tool machining procedure for the sides.
- 5. You can check the remaining information for the tool once again under the **GENERAL** tab.
- 6. You can check the tool's information once again under the GEOMETRY tab.
- 7. You can check the tool's information once again under the **TECHNOLOGY** tab.
- 8. You can check the tool's information once again under the FITTING tab.
- 9. Press the **OK** button to apply the information and close the menu.
- 10. The new tool will be shown on the TOOL SELECTION menu.
- 11. Press the **OK** button to close the menu.

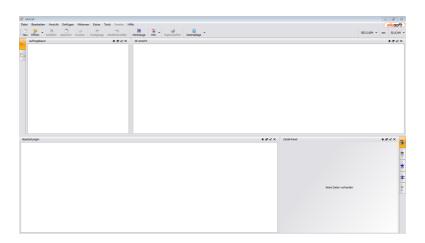


1.2 Creating a job

An appropriate job must be selected in the job management dialog or a new one created to carry out a machining operation.

In order to create a new job, follow the steps below:

- 1. A job needs to be selected or a new job needs to be created (in the program's user interface).
 - a) Press the ^{öffnen} button to open the directory selection dialog box that is used to open already existing jobs.
 - b) Press the Neu button to start creating a new job. Make sure the job has a descriptive and unique name.





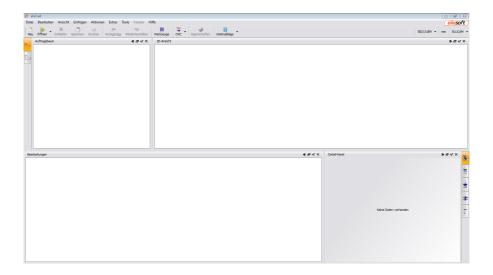
1.2.1 Open existing job

You can access and use previously stored jobs at a later point in time.

To open a job that already exists, follow the steps below:



- 1. Press the ^{Öffnen} button to open the directory selection dialog box.
- 2. In the directory, select the location where the job you want is stored.
- 3. Press the **OPEN**button to open the selected job. The job will be shown in eluCAD.





1.2.2 Create new job

You can add the programs you need when creating a new job.

To create a new job, you must perform the following steps:

1. Press the Neu button to open an input field used to enter the job's name.

- 2. Enter the name you want or the number for the job into the **JOB NUMBER** field. Make sure the job has a descriptive and unique name.
- 3. You can use the **REMARK** field to add additional information concerning the job.
- 4. Press the NEXT button to accept the entry. The PROFILE DATABASE menu will open.
- 5. Select an appropriate profile from the PROFILE DATABASE menu.
- 6. Press the **OK** button to apply your selection and close the **PROFILE DATABASE** menu.
- 7. The new job you just created will be shown in the job tree.

1.2.2.1 Create a new profile

To create a new profile, use the **PROFILE DATABASE** menu.

To create a new profile, perform the following steps: In the menu bar under **VIEW**, open the **PROFILE DATABASE** menu.

1. The **PROFILE DATABASE** menu can be used to create a profile <u>manually</u> or with a <u>DXF</u> <u>import</u> 12.

Profile	Vendor	Series	Colour	Comm	Date	Filter:
80x80x4					07.09.2012	
Doku-Profil-TT					07.09.2012	·
						Filter
						Preview: 80x80x4
						_
						L

The further procedure is described in the respective chapters.



1.2.2.1.1 Creating a profile manually

Profiles can be created manually in the **PROFILE DATABASE** menu.

Carry out the following steps to manually create a new profile:

- 1. Open the **PROFILE DATABASE** as described in the <u>Creating a profile</u> b chapter.
- 2. In the menu bar under EDIT | NEW ENTRY, open the PROFILE menu.
- 3. In the **PROFILE NUMBER** input field, enter the designation of the new profile. Make sure the profile has a descriptive and unique name.
- 4. Enter or select all further basic information about the profile in the remaining input and selection fields.

Profile									x
Profile num	ber:	I							
Vendor:									
Series:									
Color:									
Surface:									
Comment:									
Profile Len	gth:		6000	mm					
leight:	-			mm					
Width:		0	mm						
DGX orientation: Clamp distance END: Clamp work dist. END: Clamp distance MID: Fxture offsets:		default							
		0.0		mm					
				0.0 mm 0.0 mm		Con	tour		
		SBZ150.epo 👻							
Orient	Fixture	Offset X	Offse	tΥ	Offset Z	Offset Y2	Offset Z1	Offset 2	-
0		0		0	0	0	0		
1		0		0	0	0	0		Ξ
2		0		0	0	0	0		L
3		0		0	0	0	0		
5		0		0	0	0	0		
•	1	U			U	U	U	•	
									-

5. Press the **CONTOUR** button to open the **CAD EDITOR** menu so that you can create the profile you want

File	Ec	lit I	nput	F	uncti	ons																			
ск∕	B		8			↔	Ð	🖓	4	1	ſ	0	- -	79	6 2	n /∓	5	_⊾"	6	Laye	r:	All			
1	í	80	-20		-10	0		10		20	30		40		50	60		70	80	90		00	110	120	
-																									
8																									
8																									
-																									
2																									
3																									
8																									
₹.																									
8																									
R																									
						Û																			

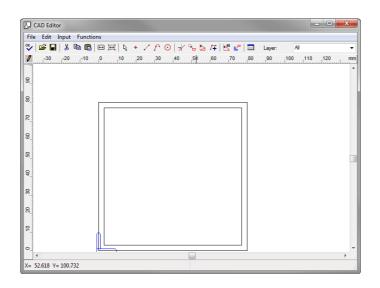
6. In the menu bar under FUNCTIONS | STANDARD PROFILES, open the STANDARD PROFILE menu.



7. Select the desired basic type via the **PROFILE TYPE** selection field.

🔊 Standard p	rofiles		
Profile type:			Preview:
Square		•	
Height:	н	80	
Width:	w	80	
Measure 1:	D1	3	
Measure 2:	D2	3	
		ОК	Cancel

- 8. Enter the appropriate dimensions for the profile into the input fields.
- 9. Press the **OK** button to apply the information in the **CAD EDITOR** menu and close the menu.
- 10. The new profile is displayed purely as a DXF profile in the **CAD EDITOR** menu.
- 11. Press the button to accept the new profile and close the menu.





12. The **PROFILE** menu reopens with the data of the newly created profile.

🗗 Profile						×
Profile number:	80x80x3]
Vendor:			1 11 -			
Series:			1			
Color:			1			
Surface:			1			
Comment:			1			
Profile Length:		6000 mm				
Height:		80 mm				
Width:		80 mm				
DGX orientation:	default					
Clamp distance END:		0.0 mm				
Clamp work dist. END:		0.0 mm		Con		
Clamp distance MID:		0.0 mm		Con	lour	
Fixture offsets:	SBZ150.epo					
Orient Fixture	Offset X	Offset Y	Offset Z	Offset Y2	Offset Z1	Offset 2 ^
	0	0	01361 2	011361 12	0	Oliset 2
1	0	0	0	0	0	=
2	0	0	0	0	0	
3	0	ů 0	0	0	0	
4	0	0	0	0	ō	
5	0	0	0	0	0	-
•						•
		ОК	Cancel			,

- 13. The row in the support blocks table with the desired profile position must be selected.
- 14. Double-click on the row in order to open the **SUPPORT BLOCK** menu.
- 15. Enter the name for the new support block into the **NAME** input field. Make sure the support block has a descriptive and unique name.
- 16. Enter the appropriate values for the support blocks into the remaining input fields. If the **DISPLAY PROFILE VIEW** field is enabled, the offset of the profile due to the support blocks can be displayed in the profile view.

Use the button to select previously stored support blocks from the **SUPPORT BLOCK DA-TABASE** menu. Select the support block you need and apply your selection with **OK**.

Name:	l		8	
Profile				
Offset X:	Px	, 0	nm	
Offset Y:	Py	0 r	nm	
Offset Z:	Pz	n 0	nm	
Fixture				
left	Z1	0 r	nm	Рү Ү2
right	Y2	0 1	nm	Px Pz Z1 Z2
right	Z2	0 r	nm	
Show pro	ile view			

- 17. A Z-axis offset can also be specified in the SUPPORT BLOCK menu.
- 18. Press the **OK** button to apply the support block information in the **PROFILE** menu and close the menu.
- 19. If you want to create additional support blocks, repeat steps 13 through 16.



20. Once you have entered all the information you want, press the **OK** button to accept the new profile in the **PROFILE DATABASE** menu and close the menu.

1.2.2.1.2 Importing a profile in DXF format

Profiles in the DXF format can be imported in the **PROFILE DATABASE** menu.

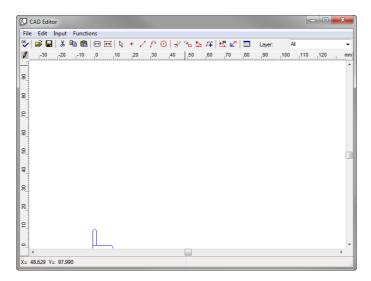
The following steps are required to import a new profile in DXF format:

- 1. Open the **PROFILE DATABASE** as described in the <u>Creating a profile</u> chapter.
- 2. In the menu bar under EDIT | NEW ENTRY, open the PROFILE menu.

Profile numbe Vendor: Series: Color: Surface:	er:								
Series: Color: Surface:									
Color: Surface:									
Surface:									
Comment:									
Profile Length	h:		6000	mm					
Height:			0	mm					
Width:			mm						
DGX orientation:		default	-	_					
Clamp distan		derbait	mm						
Clamp work o				mm					
Clamp distan				mm		Cont	tour		
			0.0	mm					
Fixture offset:	S:	SBZ150.epo		•					
Orient	Fixture	Offset X	Offse	t Y	Offset Z	Offset Y2	Offset Z1	Offset 2	^
0		0		0	0	0	0		
1		0		0	0	0	0		Ξ
2		0		0	0	0	0		
3		0		0	0	0	0		
4		0		0	0	0	0		
5		0		0	0	0	0		Ŧ
•				III				- F	



3. Press the **CONTOUR** button to open the **CAD EDITOR** menu so that you can create the profile you want



- 4. In the menu bar under FILE | OPEN DXF FILE, open the OPEN submenu.
- 5. Use the directory selection item to select the storage location for the desired DXF file.
- 6. Use the **OPEN** button to use the selected file and close the submenu.
- 7. The opened drawing is displayed in the scale in which it was created in the CAD EDITOR.

1	The machine uses the actual dimensions of the drawing. If the drawing was not created in 1:1, scaling is required in the CAD EDITOR menu.

- 8. Select the drawing with the keys CTRL + A.
- 9. Use the button to shift the drawing to the origin.
- 10. Press the button to accept the newly created profile.



11. The **PROFILE** menu reopens with the data of the newly created profile.

🕜 Profile						×
Profile number:	80x80x3					
Vendor:						
Series:						
Color:						
Surface:						
Comment:						
Profile Length:		6000 mm				
-						
Height:		80 mm				
Width:		80 mm	L			
DGX orientation:	default		•			
Clamp distance END:		0.0 mm				
Clamp work dist. END:		0.0 mm		C (ntour	
Clamp distance MID:		0.0 mm		- u	i itoui	
Fixture offsets:	SBZ150.epo		•			
Orient Fixture	Offset X	Offset Y	Offset Z	Offset Y2	Offset Z1	Offset 2 ^
0	0	0	0	0	0	
1	0	0	0	0	0	=
2	0	0	0	0	0	
3	0	0	0	0	0	
4	0	0	0	0	0	
5	0	0	0	0	0	-
•		1	11			•
		ОК	Cancel			

- 12. In the **PROFILE NUMBER** input field, enter the designation of the new profile. Make sure the profile has a descriptive and unique name.
- 13. Enter or select all further basic information about the profile in the remaining input and selection fields.
- 14. The row in the support blocks table with the desired profile position must be selected.
- 15. Double-click on the row in order to open the **SUPPORT BLOCK** menu.
- 16. Enter the name for the new support block into the **NAME** input field. Make sure the support block has a descriptive and unique name.

Use the button to select previously stored support blocks from the **SUPPORT BLOCK DA-TABASE** Select the support block you need and apply your selection with **OK**.

17. Enter the appropriate values for the support blocks into the remaining input fields. If the **DISPLAY PROFILE VIEW** field is enabled, the offset of the profile due to the support blocks can be displayed in the profile view.

🗗 Profile fixt	ure			
Name:			8	
Profile				
Offset X:	Px	0 mm		
Offset Y:	Py	0 mm		
Offset Z:	Pz	0 mm		
Foture				
left	Z1	0 mm		Py Y2
right	Y2	0 mm		Px Pz Z1 Z2
right	Z2	0 mm		
Show pro	file view			
	ОК	Cancel		

18. A Z-axis offset can also be specified in the SUPPORT BLOCK menu.



- 19. Press the **OK** button to apply the support block information in the **PROFILE** menu and close the menu.
- 20. If you want to create additional support blocks, repeat steps 14 through 19.
- 21. Once you have entered all the information you want, press the **OK** button to add the new profile to the profile database and close the menu.
- 22. Press the **OK** button to close the **PROFILE DATABASE** menu.



1.3 Machining program - View

1.3.1 Creating a machining operation

The individual machining tasks can be created through manual input of the data and values in the Machining tasks table.

<u>.</u>	• X 🚽	* 🚯 🗎 🛲 💽 # 🦻	t : 🔧	🏽 🔩 💩 🖓 🛛 🌱	↓ † ↓	🛉 💱 🗮 🛤	i 📕 🗮 🗄				
No.	Active	Туре	Prio.	Side	х	Y	Z	Tool	Feed	Depth	
1	V 🗄	Drill	0	😰 top	100		0	Automatic		2.0	X
2	🔽 📀	Circle	0	📁 front	200	0.0	-25	Automatic	100	2.0	X
3	V 🔸	Rectangle	0	🖲 back	200	У	-25	Automatic	100	2.0	X د
		+									

To create a new machining operation, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks . If a line containing a machining operation is selected, it can be overwritten!
- 2. Use a double click on the **TYPE** cell to select the basic type in the selection window.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. Use a double click on the **SIDE** cell to select the desired machining side via the selection window.
- 5. Enter the X-position of the machining operation in the X cell.
- 6. Enter the Y-position of the machining operation in the Y cell.
- 7. Enter the Z-position of the machining operation in the Z cell.
- The tool is defined automatically by default in the **Tool** cell. Double-click on the cell in order to enable the **AUTOMATIC** button. Using this button, a tool can be defined via the **TOOL SELECTION** menu.
- 9. The value of 100% is already entered in the **Feed** cell. The desired value can be entered by selecting the cell.
- 10. Enter the maximum depth of the machining task in the **Depth** cell. When a value is entered, further buttons will be displayed.
- 11. The button triggers automatic wall detection. The value determined is displayed in the **DEPTH** cell and is added to the Depth table.



12. Open the **DETAIL** tab and enter the respective values for the machining task or select them.

Different input boxes can be active depending on which type is selected.

Length: 30 Width: 20 Corner radius: 4 Angle: 0.0 A-Achse: 90.0 Caxis:: 0.0	mm mm o
Corner radius: 4 Angle: 0.0 A-Achse: 90.0	mm
Angle: 0.0 A-Achse: 90.0	
A-Achse: 90.0	•
C axis:: 0.0	
Tool diameter: 0.0	mm
Comment:	

13. Open the **PARAMETERS** tab and enter the respective data or select them. Different input boxes can be active depending on which type is selected.

Parameters: cut	< 88×
Condition:	
Convert cutting angles:	
Generate saw cuts:	
Clocking program:	
Reset clamp situation:	



14. Open the **DEPTH TABLE** tab and enter the respective data or select them.

De	epth t	able		•	₽B×
		D	м	F	RPM
	1	30.00 mm		100%	100%
	2	31.80 mm		80 %	100 %
	1		<u>+</u>	A	
	V A	utomatic security distand	e		

If automatic wall detection was performed in the **MACHINING TASKS** table, the values are already present in the depth table.

15. Repeat steps 1-14 to create additional machining tasks.



2 Using the CAM software

The use of the CAM software is described in the following chapters. They exemplify procedures and options available for use with software.

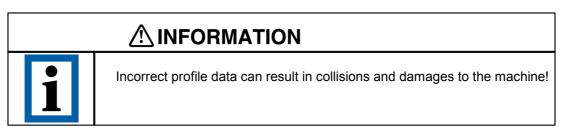
The solutions proposed are examples only and it may also be possible to achieve the results using other solutions.

2.1 Profile data

The use of the profile data is described in the following chapters.

2.1.1 Creating a profile

The data of the profile to be machined are required to be able to perform a machining task. The **PROFILE DATABASE** menu manages all the profiles used and saves the respective data from the different profile positions. To achieve a better overview, the **PROFILE DATABASE** menu should always be maintained in an orderly fashion and meaningful names should be given.



To create new profiles, perform the following steps:

1. In the menu bar under VIEW, open the PROFILE DATABASE menu.

Profile	Vendor	Series	Colour	Comm	Date	Filter:
80x80x4					07.09.2012	
Doku-Profil-TT					07.09.2012	•
						Filter
						Preview: 80x80x4

2. In the **PROFILE DATABASE** menu, a profile can be <u>created manually</u> 20 or <u>imported in DXF</u> format 23. The further procedure is described in the respective chapters.



2.1.1.1 Creating a profile manually

Profiles can be created manually in the **PROFILE DATABASE** menu.

Carry out the following steps to manually create a new profile:

- 1. Open the **PROFILE DATABASE** as described in the <u>Creating a profile</u> 19 chapter.
- 2. In the menu bar under EDIT | NEW ENTRY, open the PROFILE menu.
- 3. In the **PROFILE NUMBER** input field, enter the designation of the new profile.
- 4. Enter or select all further basic information about the profile in the remaining input and selection fields.

🗗 Profile									×
Profile num	ber:								
Vendor:									
Series:									
Color:									
Surface:									
Comment:									
Profile Len	ath:		6000	mm					
Height:			0	mm					
Width			0	mm					
DGX orient	ation:	default	-	-					
Clamp dista			0.0	mm					
	c dist. END:			mm					
Clamp dista				mm		Con	tour		
			0.0						
Fixture offs	ets:	SBZ150.epo		•					
Orient	Fixture	Offset X	Offse	tΥ	Offset Z	Offset Y2	Offset Z1	Offset 2	^
0		0		0	0	0	0		
1		0		0	0	0	0		=
2		0		0	0	0	0		
3		0		0	0	0	0		
4		0		0	0	0	0		
5		0		0	0	0	0		Ŧ
•								•	
			ОК		Cancel				

5. Press the **CONTOUR** button to open the **CAD EDITOR** menu so that the desired profile can be created.

File	e Edi	it In	put	Fun	ctio	ns																			
ок V	🗃		*	ا 10	2	⇔	⊖	L	+	/	ſ	0	-*	۳.	⊳	/∓	7	2	<u>.</u>	Layer:		All			
1	-3	0	-20	-10	0	0		10	20		30		40	50		60	70		80	90	100		10	120	
-																									
8																									
8																									
~																									
R																									
_																									
8																									
8																									
\$																									
8																									
-																									
8																									
ę																									
-						Û																			

6. In the menu bar under **FUNCTIONS | STANDARD PROFILES**, open the **STANDARD PROFILE** menu.

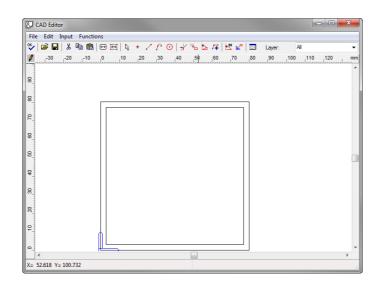


7. Select the desired basic type via the **PROFILE TYPE** selection field.

🚴 Standard p	rofiles		×
Profile type:			Preview:
Square		-	P4
Height:	н	80	
Width:	w	80	₩
Measure 1:	D1	3	
Measure 2:	D2	3	
		ОК	Cancel

- 8. Enter the respective dimensions in the input fields.
- 9. Pressing the OK button applies the data in the CAD EDITOR menu and closes the STAN-DARD PROFILE menu.
- 10. The new profile is displayed purely as a DXF profile in the **CAD EDITOR** menu.

11. Press the button to accept the newly created profile and close the **CAD EDITOR**.





12. The **PROFILE** menu reopens with the data of the newly created profile.

🗗 Profile						×
Profile number:	80x80x3					
Vendor:						
Series:						
Color:						
Surface:						
Comment:						
Profile Length:		6000 m	m			
Height:		80 m	m			
Width:		80 m	m			
DGX orientation:	default		•			
Clamp distance END:		0.0 m	m			
Clamp work dist. END:		0.0 m				
Clamp distance MID:		0.0 m		60	ntour	
		0.0				
Fixture offsets:	SBZ150.epo		•			
Orient Fixture	Offset X	Offset \	Offset Z	Offset Y2	Offset Z1	Offset 2 🔺
0	0	() 0	0	0	
1	0	(-	0	0	=
2	0	() 0	0	0	
3	0	(-	0	0	
4	0	(0	0	
5	0			0	0	-
•			m			- F
		ОК	Cancel			

- 13. The profile-specific support blocks used can be defined in the support blocks table. If support blocks need to be created for the new profile, proceed as described in the chapter on <u>Support blocks</u> 27.
- 14. Once all of the data has been entered, press **OK** to accept the new profile and close the **PRO-FILE** menu.



2.1.1.2 Importing a profile in DXF format

Profiles in the DXF format can be imported in the **PROFILE DATABASE** menu.

The following steps are required to import a new profile in DXF format:

- 1. Open the **PROFILE DATABASE** as described in the <u>Creating a profile</u> 19 chapter.
- 2. In the menu bar under EDIT | NEW ENTRY, open the PROFILE menu.
- 3. In the **PROFILE NUMBER** input field, enter the designation of the new profile.
- 4. Enter or select all further basic information about the profile in the remaining input and selection fields.

2 0 0 0 0 3 0 0 0 0 4 0 0 0 0 5 0 0 0 0	🕜 Profile								x
Series:	Profile number:]				
Color:	Vendor:								
Surface:	Series:								
Comment: Fordile Length: 6000 mm Height: 0 mm 0 mm Udth: 0 mm 0 mm DGX orientation: default • Clamp distance END: 0.0 mm Contour Clamp distance MID: 0.0 mm Contour Fixture offsets: SBZ150.epo • Orient Fixture Offset X Offset Y Offset Y2 Offset Z1 Offset 7 0 0 0 0 0 0 1 0 0 0 0 0 1 2 1 0 0 0 1 2 1 0 0 0 1 2 1	Color:								
Profile Length: 6000 mm Height: 0 mm Width: 0 mm DGX orientation: default Clamp distance END: 0.0 mm Clamp distance MID: 0.0 mm Camp distance MID: 0.0 mm Foture offsets: SBZ150 epo Orient Foture Offset X Offset Y Offset X 0 fset Z O 0 1 0 0 0 2 0 0 0 3 0 0 0 4 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Surface:								
Height: 0 Height: 0 Width: 0 DGX orientation: default Clamp distance END: 0.0 Clamp distance MID: 0.0 Clamp distance MID: 0.0 Fixture offsets: SBZ150.epo Orient Fixture Offset X Offset Y Offset S 0 2 0 0 0 2 0 0 0 3 0 0 0 4 0 0 0 5 0	Comment:								
Width: 0 mm DGX orientation: default • Clamp distance END: 0.0 mm Contour Clamp distance MID: 0.0 mm Contour Clamp distance MID: 0.0 mm Contour Foture offsets: SBZ150.epo • Orient Foture Offset X Offset Y Offset Y2 Offset Z1 Offset Z 0 0 0 0 0 0 1 2 0 0 0 0 1 2 3 0 0 0 0 4 0 0 0 4 0 0 0 0 0 0 0 0	Profile Length:		6000	mm					
DGX orientation: default Clamp distance END: 0.0 mm Contour Clamp distance MID: 0.0 mm Contour Glamp distance MID: 0.0 mm Contour Foture offsets: SBZ150.epo Orient Foture Offset X Offset Y Offset Z Offset Z1 Offset Z 0 0 0 0 0 0 0 1 2 0 0 0 0 0 4 0 0 4 5 0 0 0 0 0 4 4	Height:		0	mm					
Clamp distance END: 0.0 mm Contour Clamp work dist. END: 0.0 mm Contour Clamp distance MID: 0.0 mm Contour Fixture offsets: SBZ150 epo V Orient Fixture Offset X Offset Y Offset Y2 Offset Z1 Offset Z 0 0 0 0 0 0 0 0 2 0 0 0 0 0 0 1 3 0 0 0 0 0 0 4 0 0 0 0 4 0 0 0 0 0 0 0 0	Width:		0	mm					
Clamp work dist. END: 0.0 mm Contour Clamp distance MID: 0.0 mm Contour Foture offsets: SBZ150.epo V V Orient Foture Offset X Offset Y Offset Z Offset Z1 Offset Z 0 0 0 0 0 0 0 0 2 0 0 0 0 0 0 0 3 0 0 0 0 0 0 0 4 0 0 0 0 0 0 0	DGX orientation:	default		•					
Olamp distance MID: 0.0 mm Foture offsets: SBZ150 epo Orient Foture Offset X Offset Y O 0 3 0 0 0 5 0 0 0 0 0	Clamp distance END:		0.0	mm					
Clamp distance MID: 0.0 mm Fxture offsets: SBZ150.epo v Orient Fxture offset X Offset Y Offset Z Offset Z1 Offset Z 0 0 0 0 0 0 1 2 0 0 0 0 0 1 3 0 0 0 0 0 1 5 0 0 0 0 0 1	Clamp work dist. END:		0.0	mm		Cor	tour		
Orient Foture Offset X Offset Y Offset Z Offset Z1 Offs	Clamp distance MID:		0.0	mm					
0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 2 0 0 0 0 0 0 3 0 0 0 0 0 0 4 0 0 0 0 0 0 0 5 0 0 0 0 0 0 0 • • • • • • • • • • • • • • • • • • •	Fixture offsets:	SBZ150.epo		•					
1 0 0 0 0 0 2 0 0 0 0 0 3 0 0 0 0 0 4 0 0 0 0 5 0 0 0 0	Orient Fixture	Offset X	Offse	tΥ	Offset Z	Offset Y2	Offset Z1	Offset 2	•
2 0 0 0 0 3 0 0 0 0 4 0 0 0 0 5 0 0 0 0	0	0		0	0	0	0		
3 0 0 0 0 4 0 0 0 0 5 0 0 0 0 • • • •	1	0		0	0	0	0		=
		-		-	-	-	-		
5 0 0 0 0 0		-		-	-	-	-		
		-		-	-	-	-		
		0			0	0	0	_	-
UK Caricei			ОК		Cancel				

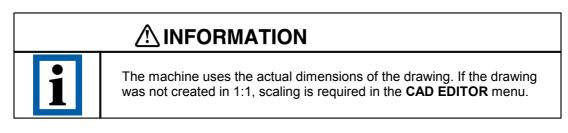
5. Press the **CONTOUR** button to open the **CAD EDITOR** menu so that the desired profile can be created.

	AD E																					X
	Edit																					
К	2	*		⇔	↔	Q	+	/	Γ	0	-*	°*-	5 /	F	5 6	6	Layer:		All			
1	-30	 -20	 0	0		10		0	30		40	50	6	0	70	80	90	100	1	10	120	
-																						
8																						
8																						
2																						
8																						
8																						
2																						
8																						
3																						
2																						
				<u> </u>																		
-				L	_																	
	4																					Þ

- 6. In the menu bar under FILE | OPEN DXF FILE, open the OPEN submenu.
- 7. Use the directory selection item to select the storage location for the desired DXF file.
- 8. Use the **OPEN** button to use the selected file and close the submenu.



9. The opened drawing is displayed in the scale in which it was created in the ELUCAD EDITOR.



- 10. Select the drawing with the keys CTRL + A.
- 11. Use the \square button to shift the drawing to the origin.
- 12. Press the \checkmark button to accept the newly created profile.
- 13. The **PROFILE** menu reopens with the data of the newly created profile.

Profile num	ber:	80x80x3					
Vendor:							
Series:							
Color:				- 11			
Surface:				- 11			
Comment:				-			
Profile Len	ath:		6000 mm				
Height:			80 mm				
Nidth:			80 mm				
				_			
OGX orient	tation:	default	-				
		default	0.0 mm				
Clamp dista	ance END:	default	0.0 mm				
Clamp dista Clamp work	ance END: k dist. END:	default	0.0 mm		Con	tour	
Clamp work	ance END:	default		·	Con	tour	
Clamp dista Clamp work	ance END: k dist. END: ance MID:	default SBZ150.epo	0.0 mm		Con	tour	
Clamp dista Clamp work Clamp dista	ance END: k dist. END: ance MID: ets:		0.0 mm 0.0 mm	Offset Z	Con Offset Y2	tour	Offset 2
Clamp dista Clamp work Clamp dista Fixture offs	ance END: k dist. END: ance MID: ets:	SBZ150.epo	0.0 mm 0.0 mm				Offset 2
Clamp dista Clamp work Clamp dista Crixture offs Orient 0 1	ance END: k dist. END: ance MID: ets:	SBZ150.epo Offset X 0 0	0.0 mm 0.0 mm Offset Y	Offset Z	Offset Y2 0 0	Offset Z1	Offset 2
Clamp dista Clamp work Clamp dista Fixture offs Orient 0 1 2	ance END: k dist. END: ance MID: ets:	SBZ150.epo Offset X 0 0 0	0.0 mm 0.0 mm Offset Y 0 0 0	Offset Z 0 0	Offset Y2 0 0 0	Offset Z1 0 0 0	Offset 2
Clamp dista Clamp work Clamp dista Fixture offs Orient 0 1	ance END: k dist. END: ance MID: ets:	SBZ150.epo Offset X 0 0 0 0 0	0.0 mm 0.0 mm Offset Y 0 0 0 0	Offset Z 0 0 0 0	Offset Y2 0 0 0 0	Offset Z1 0 0 0 0	Offset 2
Clamp dista Clamp work Clamp dista Fixture offs Orient 0 1 2	ance END: k dist. END: ance MID: ets:	SBZ150.epo Offset X 0 0 0	0.0 mm 0.0 mm Offset Y 0 0 0	Offset Z 0 0	Offset Y2 0 0 0	Offset Z1 0 0 0	Offset 2

- 14. The profile-specific support blocks used can be defined in the support blocks table. If support blocks need to be created for the new profile, proceed as described in the chapter on Support blocks 27.
- 15. Once all of the data has been entered, press **OK** to accept the new profile and close the **PRO-FILE** menu.



2.1.1.3 Copying a profile

The data of previously existing profiles can be copied in the **PROFILE DATABASE** menu.

To copy a profile, perform the following steps:

- 1. Open the **PROFILE DATABASE** as described in the <u>Creating a profile</u> 19 chapter.
- 2. Select the desired profile in the opened menu.

Profile	Vendor	Series	Colour	Comm	Date	Filter:
30x80x4					07.09.2012	
Doku-Profil-TT					07.09.2012	•
						Filter
						Preview: 80x80x4

- 3. In the menu bar under EDIT | COPY ENTRY, open the PROFILE menu.
- 4. All basic information for the profile is displayed in the opened menu.
- 5. A new designation for the profile is entered in the **PROFILE NUMBER** input field automatically. The designation can be changed accordingly at any time.

									_
Profile nur	nber:	80x80x4-copy							
Vendor:									
Series:									
Color:									
Surface:									
Comment:									
Profile Len	uath:		6000	mm					
Height:	gui.		80	mm					
Width				mm					
			80						
DGX orien		default		•					
Clamp dist	ance END:		0.0	mm					
Clamp wor	k dist. END:		0.0	mm		Cont	tour		
oramp wor									
	ance MID:		0.0	mm					
Clamp dist		SBZ150.epo	0.0	mm -					
Clamp dist	sets:	SBZ150.epo Offset X	0.0 Offse	•	Offset Z	Offset Y2	Offset Z1	Offset 2	-
Clamp dist	sets:	Offset X		•	Offset Z	Offset Y2 45	Offset Z1 0	Offset 2	
Clamp dist Fixture offs Orient 0 1	ets: Fixture	Offset X 0 0		▼ et Y 40 0	0	45 0	0	Offset 2	•
Clamp dista Fixture offs Orient 0 1 2	ets: Fixture	Offset X 0 0 0			0 0 0	45 0 0	0 0 0	Offset 2	
Clamp distr Fixture offs Orient 0 1 2 3	ets: Fixture	Offset X 0 0 0 0			0 0 0 0	45 0 0	0 0 0	Offset 2	
Clamp dist: Fixture offs Orient 0 1 2 3 4	ets: Fixture	Offset X 0 0 0 0 0 0 0			0 0 0 0 0 0	45 0 0 0 0	0 0 0 0 0 0 0	Offset 2	
Clamp dista Fixture offs Orient 0 1 2 3	ets: Fixture	Offset X 0 0 0 0			0 0 0 0	45 0 0	0 0 0	Offset 2	

6. The data in the further selection and input fields can be modified or adapted accordingly.



7. Pressing the **OK** button applies the data and closes the **PROFILE** menu.

Profile	Vendor	Series	Colour	Comm	Date	Filter:
30x80x4-copy					07.09.2012	
30x80x4					07.09.2012	•
Doku-Profil-TT					07.09.2012	Filter Preview: 80x80x4
						_

2.1.1.4 Modifying a profile

The data of previously existing profiles can be modified in the **PROFILE DATABASE** menu.

To edit a profile, perform the following steps:

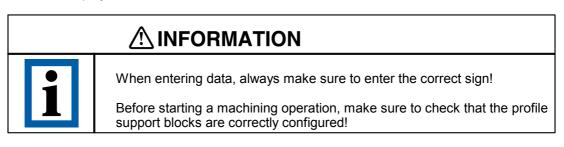
- 1. Open the **PROFILE DATABASE** as described in the <u>Creating a profile</u> 19 chapter.
- 2. Select the desired profile in the opened menu.
- 3. In the menu bar under EDIT | EDIT ENTRY, open the PROFILE menu.
- 4. All basic information for the profile is displayed in the opened menu.
- 5. The data in the selection and input fields can be modified or adapted accordingly. Pressing the **OK** button applies the modified data and closes the **PROFILE** menu.



2.1.1.5 Support blocks

Support blocks aid in the machining of the profile. The right selection is very important to achieve sound and precise machining results. Depending on the machining operation, it may be necessary to swap the support blocks when changing the clamping position.

Support blocks have an offset in the X, Y and Z directions. Two different types of support blocks are used and displayed on the machine.



• Profile-specific support blocks:

The profile-specific **SUPPORT BLOCKS** can differ depending on the profile and clamping position. The support blocks add an additional offset to the profile.

To set the profile support blocks in the eluCad software, the following steps must be performed:

- 1. Open the **PROFILE DATABASE** in the menu bar under **VIEW | PROFILE DATABASE**.
- 2. In the menu bar under EDIT | EDIT ENTRY, open the PROFILE menu.

Profile								
Profile nur	iber:	80x80x4-copy						
Vendor:								
Series:				_				
Color:				_				
Surface:				_				
Comment:				_				
Profile Len	ath:		6000	nm				
Height:	gui.		80					
-								
Width:			80 1	nm				
DGX orien	tation:	default		-				
Clamp dist	ance END:		0.0	mm				
Clamp wor	k dist. END:		0.0	nm		Con	tour	
Clamp dist	ance MID:		0.0	mm				
Fixture offs	ets:	SBZ150.epo		•				
Orient	Fixture	Offset X	Offset	Y I	Offset Z	Offset Y2	Offset Z1	Offset 2
	Standard_SB	0	4	10	0	45	0	
0		0		0	0	0	0	
1		0		0	0	0	0	
1 2				0	0	0	0	
1 2 3		0		-				
1 2 3 4		0		0	0	0	0	
1 2 3		-		-	0	0	0	

3. The row in the support blocks table with the desired profile position must be selected.



4. Use a double click on the S.BLOCK cell to open the SUPPORT BLOCK menu.

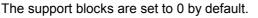
🕜 Profile fixt	ure			×
Name:			8	
Profile				
Offset X:	Px	0 mm		
Offset Y:	Py	0 mm		
Offset Z:	Pz	0 mm		
Fixture				
left	Z1	0 mm	PY	Y2 .
right	Y2	0 mm	Px Pz z1 z	2
right	Z2	0 mm	+ - + 2 + - 1 + - 1	<u> </u>
Show pro	file view OK	Cancel		

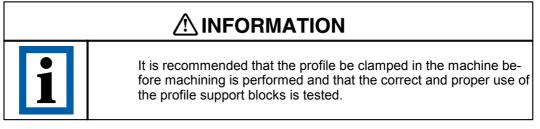
5. The corresponding data for the support blocks must be entered in the input fields of the SUPPORT BLOCK menu.

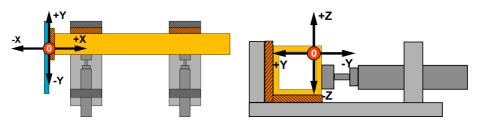
If the **DISPLAY PROFILE VIEW** field is enabled, the offset of the profile due to the support blocks can be displayed in the profile view.

The profile support blocks are stored as 3D solids and are available for collision-related considerations.

- 6. Use the button to select previously stored support blocks from the **SUPPORT BLOCK DATABASE**
- 7. Pressing OK applies the data of the support blocks in the PROFILE menu and closes the PROFILE SUPPORT BLOCKSmenu.







- 8. If additional profile support blocks are to be created, repeat items 3 and 7 at the desired profile position.
- 9. Pressing the **OK** button applies the modified data to the selected profile and closes the PROFILE menu.
- 10. Pressing the **OK** button applies the data and closes the **PROFILE DATABASE** menu.



2.1.1.5.1 Editing the support block geometry data

If it is necessary to modify the support block geometry data, this can be accomplished in the **SUP-PORT BLOCKS DATABASE** menu.

The following steps must be performed to modify the support block geometry data:

- 1. In the **PROFILE SUPPORT BLOCKS** menu, use the button to open the **SUPPORT BLOCKS DATABASE** menu.
- 2. Select the desired support block in the SUPPORT BLOCK DATABASE menu.

atabase Edit			
Fixture	Comment	Colour	Filter:
Standard_SBZ150			•
			Filter
			Preview:

- 3. In the menu bar under EDIT | EDIT ENTRY, the SUPPORT BLOCK menu opens.
- 4. All basic information for the support block is displayed in the **SUPPORT BLOCK** menu.
- 5. Use the CONTOUR button to open the CAD EDITOR menu.
- 6. The contour of the profile support block can be edited in the opened CAD EDITOR menu.
- 7. Open the segment input window by double clicking on the contour.
- 8. The data in the selection and input fields can be modified or adapted accordingly. The data that is entered is used later for collision-related considerations. It is therefore important that the values match the actual profile support blocks.
- 9. Once all of the data has been entered, confirm by pressing **OK** twice to add the support block to the support block database.
- 10. Pressing the **OK** button closes the **PROFILE DATABASE** and assigns the support blocks to the profile.



2.2 Machining task data

The use of the machining task data is described in the following chapters.

2.2.1 Creating a new machining task manually

The individual machining tasks can be created through manual input of the data and values in the Machining tasks table.

Works	3											€ 67	8
1	- : 🗙 🚽	° 🚯 🗎 🛲 💽 # 🦻		🎚 🤽 💩 🎠 I 🍸	+ + +	∄ 2̂₽	72 77	i 📕 🔚 🗄					
No.	Active	Туре	Prio.	Side	х	Y		z	Tool	Feed	Depth		i
	73	Drill	0	😰 top	1	0	30	0	Automatic			2.0 🗙	
2	7 📀	Circle	0	💓 front	2	10	0.0	-25	Automatic	100		2.0 🗙	
3	7 🔸	Rectangle	0	🖲 back	2	0	у	-25	Automatic	100		2.0 🗙	(
		+											

To create a new machining operation, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks . If a line containing a machining operation is selected, it can be overwritten!
- 2. Use a double click on the **TYPE** cell to select the basic type in the selection window.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. Use a double click on the **SIDE** cell to select the desired machining side via the selection window.
- 5. Enter the X-position of the machining operation in the X cell.
- 6. Enter the Y-position of the machining operation in the Y cell.
- 7. Enter the Z-position of the machining operation in the **Z** cell.
- The tool is defined automatically by default in the Tool cell. Use a double click on the cell to activate the AUTOMATIC button. Using this button, a tool can be defined via the TOOL SELECTION menu.
- 9. The value of 100% is already entered in the **Feed** cell. The desired value can be entered by selecting the cell.
- 10. Enter the maximum depth of the machining task in the **Depth** cell. When a value is entered, further buttons will be displayed.
- 11. The total button triggers automatic wall detection. The value determined is displayed in the **DEPTH** cell and is added to the Depth table.



12. Open the **DETAIL** tab and enter the respective values for the machining task or select them.

Different input boxes can be active depending on which type is selected.

Details: Rectang	le	▶ & ⊡ ×
Length:	30	mm
Width:	20	mm
Corner radius:	4	mm
Angle:	0.0	٥
A-Achse:	90.0	
C axis::	0.0	
Tool diameter:	0.0	mm
Comment:		

13. Open the **PARAMETERS** tab and enter the respective data or select them. Different input boxes can be active depending on which type is selected.

Parameters: cut		◀₽₿×
Condition:	I	
Convert cutting angles:		
Generate saw cuts:		
Clocking program:		
Reset clamp situation:		



14. Open the **DEPTH TABLE** tab and enter the respective data or select them.

De	epth t	able		4	l & R ×	¢
		D	М	F	RPM	
	1	30.00 mm		100%	100%	
	2	31.80 mm		80 %	100 %	
				4		
	V A	utomatic security dista	nce			

If automatic wall detection was performed in the **MACHINING TASKS** table, the values are already present in the depth table.

15. Repeat steps 1-14 to create additional machining tasks.



2.2.2 Machining task examples - eluCAM coordinate system

The following are examples of simple standard machining operations with the eluCAM coordinate system. They exemplify procedures and options available for use with eluCAD Software.

The solutions proposed are examples only and it may also be possible to achieve the results using other solutions. The individual solutions may also be expanded or combined.

2.2.2.1 Creating a new machining task at TOP

This example shows manual compilation of a machining operation from the top.

🗑 duCad - [Hauptansicht.ecw]		
File Edik View Insert Actions Extras Tools Windows Help		elusoft
New Open Close Save Print Undo Restore Tools CNC Attributes Datamablage		S821318H + mm NCK
Xob tree	(Git1	► 8 R ×
Image: Non-X Image: Non-X	F 💱 💱 😨 🖂 🛹 🌮 🕼 + 🧤 🖛 🗰 🗰 1443.02, 491.53, -165.06	
0		
Works	4 <i>θ</i> ∈ X Details	▶@RX .
▲·◎★★◎回##国际医师★丰美王研究院Ⅲ		Point 1
No. Active Type Prio. Side X Y	Z Tool Feed Depth	
	No data wakila	9 3 4 4

Default machining task:

- Circle pocket with 12 mm diameter
- Position top; X = 50 mm; Y = 30 mm
- Work feed rate 80%
- Depth 10 mm

To create the machining operation from the top, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the **TYPE** cell with a double click and select the type **CIRCLE**.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. In the SIDE cell, the TOP machining side is selected automatically.
- 5. Enter 50 mm for the X-position in the X cell.
- 6. Enter 30 mm for the Y-position in the Y cell.
- 7. The Z cell already contains 0 for the Z-position.
- 8. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 9. Enter the value of 80% in the FEED RATE cell.
- 10. Enter the value of 10 mm in the **DEPTH** cell. Use the button to trigger the automatic wall detection, which is transferred to the depth table.



- 11. Enter the data and values for the machining task in the input fields of the $\ensuremath{\text{DETAIL}}$ tab.
 - Diameter:

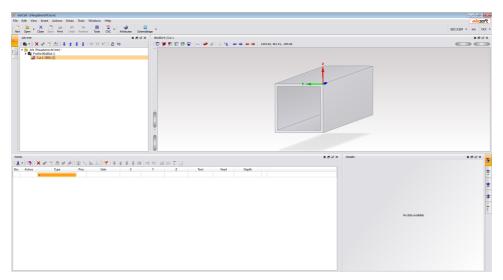
Enter 12 mm for the diameter of the machining task.

eluCad - [Neue Bearbeitung Oben/ecw]			o 2 2
File Edit View Insert Actions Extras Tools Window	ns Help		elusoft
New Open Close Save Print Undo Restore	in CNC - Attrictes Datestilane -		S8Z131EM + mm ELUCAM
Profile view	4 @ ∺ X 80x80x4 Cut 1		▶ Æ E ×
- 32.43, -15.70		😅 📣 🕂 🍓 🛥 👄 🗰 1459.17, 445.96, -37.43	
Works		€ <i>ಕಿ</i> ನ ×	Deblis Orde ► ♣ # २ _
	>>	4.64X	1
<u>↓</u> • X + ③ @ = = = ≠ ≠ 1 ≤ <u>↓</u> 1. No. Active Type Prio.	Side X Y Z	ool Feed Depth	Demeter: 12 mm
± ★ ★ ★ ★ ↓ <td>Side X Y Z</td> <td>bol Feed Depth</td> <td>Demeter: 12 mm A-Achie: 0.0</td>	Side X Y Z	bol Feed Depth	Demeter: 12 mm A-Achie: 0.0
<u>↓</u> • X + ③ @ = = = ≠ ≠ 1 ≤ <u>↓</u> 1. No. Active Type Prio.	Side X Y Z	ool Feed Depth Automatic 80 4.0 X	Deneter: 22 mm A4dne: 0.0 Codo: 0.0
± ★ ★ ★ ★ ↓ <td>Side X Y Z</td> <td>bol Feed Depth</td> <td>Demeter: 12 me A Addet: 0.0 </td>	Side X Y Z	bol Feed Depth	Demeter: 12 me A Addet: 0.0
± ★ ★ ★ ★ ↓ <td>Side X Y Z</td> <td>bol Feed Depth Without A A A</td> <td>Deneter: 22 mm A4dne: 0.0 Codo: 0.0</td>	Side X Y Z	bol Feed Depth Without A A A	Deneter: 22 mm A4dne: 0.0 Codo: 0.0
± ★ ★ ★ ★ ↓ <td>Side X Y Z</td> <td>bol Feed Depth Without A A A</td> <td>Demeter: 12 me A Addet: 0.0 </td>	Side X Y Z	bol Feed Depth Without A A A	Demeter: 12 me A Addet: 0.0
± ★ ★ ★ ★ ↓ <td>Side X Y Z</td> <td>bol Feed Depth Distances 20 40 X</td> <td>Demeter: 12 me A Addet: 0.0 </td>	Side X Y Z	bol Feed Depth Distances 20 40 X	Demeter: 12 me A Addet: 0.0
± ★ ★ ★ ★ ↓ <td>Side X Y Z</td> <td>bol Feed Depth Distances 20 40 X</td> <td>Demeter: 12 me A Addet: 0.0 </td>	Side X Y Z	bol Feed Depth Distances 20 40 X	Demeter: 12 me A Addet: 0.0
± ★ ★ ★ ★ ↓ <td>Side X Y Z</td> <td>bol Feed Depth Distances 20 40 X</td> <td>Demeter: 12 me A Addet: 0.0 </td>	Side X Y Z	bol Feed Depth Distances 20 40 X	Demeter: 12 me A Addet: 0.0
± ★ ★ ★ ★ ↓ <td>Side X Y Z</td> <td>bol Feed Depth Distances 20 40 X</td> <td>Demeter: 12 me A Addet: 0.0 </td>	Side X Y Z	bol Feed Depth Distances 20 40 X	Demeter: 12 me A Addet: 0.0
± ★ ★ ★ ★ ↓ <td>Side X Y Z</td> <td>bol Feed Depth Distances 20 40 X</td> <td>Demeter: 12 me A Addet: 0.0 </td>	Side X Y Z	bol Feed Depth Distances 20 40 X	Demeter: 12 me A Addet: 0.0
± ★ ★ ★ ★ ↓ <td>Side X Y Z</td> <td>bol Feed Depth Distances 20 40 X</td> <td>Demeter: 12 me A Addet: 0.0 </td>	Side X Y Z	bol Feed Depth Distances 20 40 X	Demeter: 12 me A Addet: 0.0
± ★ ★ ★ ★ ↓ <td>Side X Y Z</td> <td>bol Feed Depth Distances 20 40 X</td> <td>Demeter: 12 me A Addet: 0.0 </td>	Side X Y Z	bol Feed Depth Distances 20 40 X	Demeter: 12 me A Addet: 0.0
± ★ ★ ★ ★ ↓ <td>Side X Y Z</td> <td>bol Feed Depth Distances 20 40 X</td> <td>Demeter: 12 me A Addet: 0.0 </td>	Side X Y Z	bol Feed Depth Distances 20 40 X	Demeter: 12 me A Addet: 0.0
± ★ ★ ★ ★ ↓ <td>Side X Y Z</td> <td>bol Feed Depth Distances 20 40 X</td> <td>Demeter: 12 me A Addet: 0.0 </td>	Side X Y Z	bol Feed Depth Distances 20 40 X	Demeter: 12 me A Addet: 0.0



2.2.2.2 Creating a new machining task at FRONT

This example shows manual compilation of a machining operation from the front.



Default machining task:

- Long hole of length 40 mm; width 10 mm
- Position front; X = 30 mm; Z = -15 mm
- Machining angle 15°
- Work feed rate 100%
- Depth 10 mm

To create the machining operation from the front, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the **TYPE** cell with a double click and select the type **LONG HO-LE**.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. Use a double click on the **SIDE** cell to select the **FRONT** machining side in the selection window.
- 5. Enter 30 mm for the X-position in the X cell.
- 6. The Y cell already contains 0 mm for the Y-position.
- 7. Enter -15 mm for the Z-position in the Z cell.
- 8. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 9. The value of 100% is already entered in the FEED cell.
- 10. Enter the value of 10 mm in the **DEPTH** cell. Use the ^b button to trigger the automatic wall detection, which is transferred to the depth table.



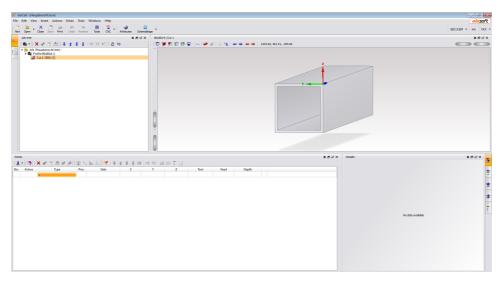
- 11. Enter the data and values for the machining task in the input fields of the **DETAIL** tab.
 - Length: Enter 30 mm for the length of the machining task.
 - Width: Enter 10 mm for the width of the machining task.
 - **Angle:** Enter 15° for the machining angle.
 - **Tool diameter:** Diameter of the tool used. Only required if no automatic assignment is to be made!
- 12. Check all inputs in the profile view.

eluCad - [Neue Bearbeitung Vorne.ecw]	
File Edit View Insert Actions Extras Tools Windows Help	elusoft
New Open Close Save Print Undo Restore Tools CNC Attributes Datamiliage	SBZ131EM ¥ mm ELUCAM
Profile view d & ⊕ स × 80x80x4 [Out 1	► @ £2 >
📑 (+ 131.07, 14.73) 💷 🐨 😰 😰 😨 🐨 😨 🖃 🛩 🐳 🐳 1444.78, 506.52, -76.47	
	Detail: lint 0.4 4 X Length 0



2.2.2.3 Generate new machining task at BACK

This example shows manual compilation of a machining operation from the rear.



Default machining task:

- Rectangle of length 60 mm; width 20 mm
- Position at back; X = 50 mm; Y = variable PW or Y (profile width); Z = -10 mm
- Corner radius 5 mm; machining angle 0°
- Work feed rate 100%
- Depth 10 mm

To create the machining operation from the rear, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the **TYPE** cell with a double click and select the type **RECTAN-GLE**.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. Use a double click on the SIDE cell to select the REAR machining side in the selection window.
- 5. Enter 50 mm for the X-position in the X cell.
- 6. Enter the variable *PW* or *Y* (profile width) for the Y-position in the **Y** cell.
- 7. Enter -10 mm for the Z-position in the Z cell.
- 8. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 9. The value of 100% is already entered in the **FEED** cell.
- 10. Enter the value of 10 mm in the **DEPTH** cell. Use the button to trigger the automatic wall detection, which is transferred to the depth table.

Use the 🔳 button to manually create or change the depth table.

11. Use the ¹¹ button to deactivate the additional depth because the depths correspond directly to the entries.



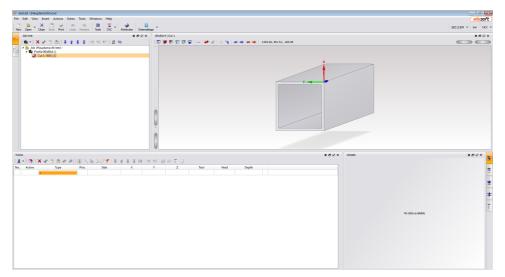
- 12. Enter the data and values for the machining task in the input fields of the **DETAIL** tab.
 - Length: Enter 60 mm for the length of the machining task.
 - Width: Enter 20 mm for the width of the machining task.
 Corner radius: Enter 5 mm for the maximum corner radius of the machining task. The software may only automatically assign a milling cutter with a maximum of 10 mm.
 - **Angle:** Enter 0° for the machining angle.
 - Tool diameter: Diameter of the tool used. Only required if no automatic assignment is to be made!
- 13. Check all inputs in the profile view.

eluCad - [Neue Bearbeirung Hinten.ecw]				9 8
File Edit View Insert Actions Extras Tools Windows Help			e	usoft]
New Open Close Save Print Undo Restore Tools CHC Attributes Catenablage			582131EM ¥ mm	ELUCAM 👻
Profile view d d* d* x 80x90x4 Out 1			Þ	eex.
🔄 : + 195.45, 45.00 💷 😳 🖗 🕲 😨 😨 😨 😨 🖓 👘 🖃 - 195.77, 495.02, 42.69				
Works	 4 % ∺ × 	Details: Rectar	gle IP d ^g ⊟	e× 🔨
<u>±</u> + [X + 0] ⊕ ⊨ ⊕ # # [N ₁] N ₂ N ₂ X Y ↓ ★ ★ ↓ ↓ H H H ⊕ [C] No. Active Type Prio. Side X Y Z Tool Feed Depth		Length:		me
No. Active Type Prio. Side X Y Z Tool Feed Depth 1 VIIII Rectangle 0 P back 50 y -10 Automatic 100 10 X	2			
+ + +	**	Corner radius:		mm
	-			• 🛨
	-	A-Achse:		
	8	C axis::		*
		Tool diameter:	0.0	mm
		Comment:		ma 11+ * 11



2.2.2.4 Generating new LEFT and RIGHT machining tasks

This example shows manual compilation of a machining operation from the left and the right.



Default machining task:

Left:

- Line of length 15 mm; width of 8 mm
- Position left; X = 0 mm; Y = 30 mm (start point); Z = 5 mm (start point)
- Machining angle 270°
- Direction, centre
- Work feed rate 100%
- Depth 5 mm

Right:

- Line of length 30 mm; width 10 mm
- Right position; X = variable *PL* or *H* (profile length); Y= 15 mm (start point); Z = -2 mm (start point: wall thickness centre)
- Machining angle 0°
- Direction, centre
- Work feed rate 100%
- Depth 12 mm

To create the machining operation from the left and the right, perform the following steps:

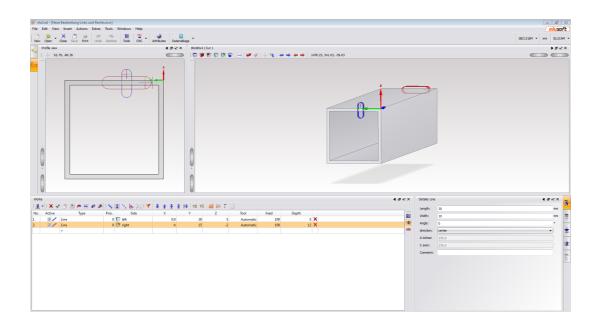
- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the **TYPE** cell with a double click and select the type **LINE**.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. Use a double click on the SIDE cell to select the LEFT machining side in the selection window.
- 5. Enter 0 mm for the X-position in the X cell.
- 6. Enter 30 mm for the Y-position in the Y cell.
- 7. Enter 5 mm for the Z-position in the Z cell.
- 8. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 9. The value of 100% is already entered in the FEED cell.
- 10. Enter the value of 5 mm in the **DEPTH** cell. Use the ^{the local} button to trigger the automatic wall detection, which is transferred to the depth table.



- 11. Use the ¹¹ button to deactivate the additional depth because the depths correspond directly to the entries.
- 12. Enter the data and values for the machining task in the input fields of the DETAIL tab.
 - Length: Enter 15 mm for the length of the machining task.
 - Width: Enter 8 mm for the width of the machining task.
 - Angle: Enter 270° for the machining angle.
 - Direction: Select CENTRE FOR THE DIRECTION.
- 13. In the **MACHINING TASKS** table, select the next blank line in the list of profile machining tasks .If a line containing a machining operation is selected, it can be overwritten!
- 14. Open the selection window in the **TYPE** cell with a double click and select the type LINE.
- 15. The machining task is activated automatically but can be deactivated at any time.
- 16. Use a double click on the **SIDE** cell to select the **RIGHT** machining side in the selection window.
- 17. For the X-position in the X cell, enter either of the variables PL or H (profile length).
- 18. Enter 15 mm for the Y-position in the Y cell.
- 19. Enter -2 mm for the Z-position in the Z cell.
- 20. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 21. The value of 100% is already entered in the **FEED** cell.
- 22. Enter the value of 12 mm in the **DEPTH** cell. Use the ^(A) button to trigger the automatic wall detection, which is transferred to the depth table.

- 23. Use the ^{III} button to deactivate the additional depth because the depths correspond directly to the entries.
- 24. Enter the data and values for the machining task in the input fields of the DETAIL tab.
 - Length: Enter 30 mm for the length of the machining task.
 - Width: Enter 10 mm for the width of the machining task.
 - Angle: Enter 0° for the machining angle.
 - Direction: Select CENTRE FOR THE DIRECTION.

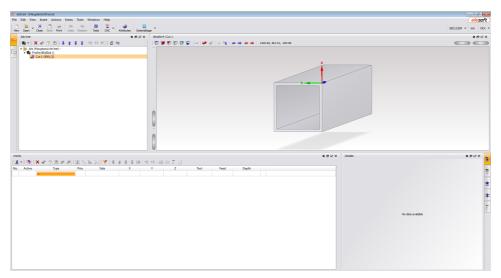






2.2.2.5 Creating a new machining task at BOTTOM

This example shows manual compilation of a machining operation from below.



Default machining task:

- Bore with 8 mm diameter
- Position bottom; X = 20 mm; Y = 35 mm; Z = variable -*PH* or -*Z* (profile height)
- Depth 10 mm
- Machining can only be performed from the top

To create the machining operation from below, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the TYPE cell with a double click and select the type DRILLING.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. Use a double click on the **SIDE** cell to select the **BOTTOM** machining side in the selection window.
- 5. Enter 20 mm for the X-position in the X cell.
- 6. Enter 35 mm for the Y-position in the Y cell.
- 7. For the Z-position in the Z cell, enter either of the variables PH or -Z (profile height).
- 8. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 9. Enter the value of 10 mm in the **DEPTH** cell. Use the button to trigger the automatic wall detection, which is transferred to the depth table.

- 10. Enter the data and values for the machining task in the input fields of the **DETAIL** tab.
 - Diameter: Enter 8 mm for the diameter of the machining task.
- 11. Enter the data and values for the machining task in the input fields of the **PARAMETERS** tab.
 - **Change of orientation:** Enter working orientation no. 2 (180° not mirrored) for the orientation of the profile during machining.
 - **Condition:** No input is required in the input field.



- Machine condition: No selection is required in the selection field.
- **Relative position:** No selection is possible in the selection field.

eluCad - [Neue Bearbeitung Unter.ecw]		
File Edit View Insert Actions Extras Tools Windows Help		elusoft]
New Open Close Save Print Undo Restore Tools CNC Attributes Datanablage		SBZ131EM ¥ mm ELUCAM ¥
Profile Veen 4 dP ≥ X 00.000×1 [Ot 1]		▶ Ø E X
🐂 🕂 - 28.33, 45.01 💿 🐨 😰 🐨 😨 🚍 🛹	af + iz 👄 🗰 🗰 1466.54, 344.75, -193.25	
Works	€ & R × Detais: Dr	। • • • • • • • • • • • • • • • • • • •
wons ± √ X ≁ 3 @ = @ # # = % ± 5 ‰ 3, Y ↓ ± ± ± ₩ % # # # # # # 1 [<u>S.</u>
No. Active Type Prio. Side X Y Z Tool	Feed Depth	
1 🔽 1 Drill 0 🕼 bottom 20.0 35.0 -z Autome	A-Adrise:	
• • • • • • • • • • • • • • • • • • •	anc 10 Casis:	
		*



2.2.2.6 New machining task from TOP with Y-value picking

This example shows the manual creation of a machining task from the top whereby the Y-position must yet be determined.

🕑 eluCad - [Hauptansicht.ecw]		
File Edit View Insert Actions Extras Tools Windows Help		(elusoft)
New Open Close Save Print Undo Restore Tools ONC Attributes Determining	•	S82131EH * mm NCX *
Job tree d 🗗 🗟 🛪 🗙	80x80x4 (Cut 1	∎æ≈×
	🔁 🎾 🔁 🕲 😨 🔄 🖂 🛹 🤣 ++ ½ ++ 🔸 ++ 🍁 1443.52,491.53.165.66	
Works	4 d' R' X Detais	► erex 5
III(10)(X ≠ 0 ≥ μ ≠ πI)(II)(k, k, k) ▼ 4 ≠ 3 ≠ 3 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 =	Yo Die endide	9 4 50

Default machining task:

- Circle pocket with 12 mm diameter
- Position top; X = 50 mm; Y = profile centre
- Work feed rate 100%
- Depth 5 mm

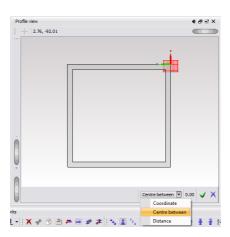
To create the machining operation from the top, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the **TYPE** cell with a double click and select the type **CIRCLE**.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. In the SIDE cell, the TOP machining side is selected automatically.
- 5. Enter 50 mm for the X-position in the X cell.
- 6. Use a double click on the **Y** cell to activate the **b**utton.

7. Use the button to automatically activate the **PICKING** function in the profile cross-section.



8. Use the substant to open the Selection dialog in the **PICKING** function.



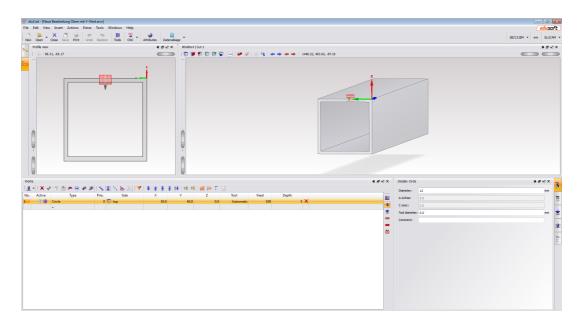
- 9. Select the **CENTRE POINT** option in the opened selection dialog to determine the coordinates.
- 10. Select the first coordinate point on the outer edge of the front profile wall using the mouse pointer.

i	To improve orientation, the mou When the edge of the profile wa the cross hairs.

To improve orientation, the mouse pointer is shown with cross hairs. When the edge of the profile wall has been reached, a red dot appears in the cross hairs.

- 11. Select the second coordinate point on the outer edge of the rear profile wall using the mouse pointer.
- 12. The centre dimension determined is displayed in the VALUE field.
- 13. Use the ✓ button to apply the determined centre point dimension in the **Y** cell. The **PICKING** function will close automatically.
- 14. The Z cell already contains 0 for the Z-position.
- 15. Enter the data and values for the machining task in the input fields of the **DETAIL** tab.
 - Diameter: Enter 12 mm for the diameter of the machining task.
 - **Tool diameter:** Diameter of the tool used. Only required if no automatic assignment is to be made!

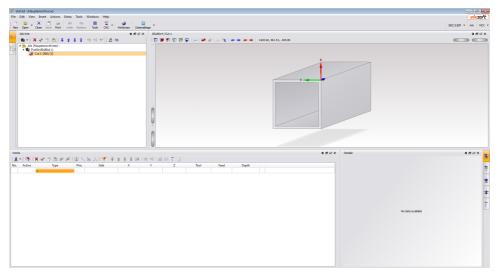






2.2.2.7 New machining task from FRONT with Z-value picking

This example shows the manual creation of a machining task from the front whereby the Z-position must yet be determined.



Default machining task:

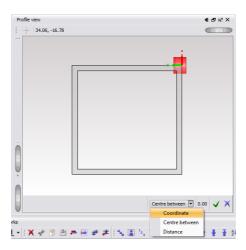
- Line of length 30 mm; width 12 mm
- Position front; X = 50 mm; Z = determine dimension; the machining task is to be positioned at the lower edge of the upper profile wall.
- Direction right
- Work feed rate 100%
- Depth 10 mm

To create the machining operation from the top, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the TYPE cell with a double click and select the type LINE.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. Use a double click on the **SIDE** cell to select the **FRONT** machining side in the selection window.
- 5. Enter 50 mm for the X-position in the X cell.
- 6. The Y cell already contains 0 mm for the Y-position.
- 7. Use a double click on the **Z** cell to activate the 1 button.
- 8. Use the button to automatically activate the **PICKING** function in the profile cross-section.



9. Use the substant to open the Selection dialog in the **PICKING** function.



- 10. Select the **COORDINATES** option in the opened selection dialog to determine the coordinates.
- 11. Select the coordinate point on the inner edge of the upper profile wall using the mouse pointer.

INFORMATION



To improve orientation, the mouse pointer is shown with cross hairs. When the edge of the profile wall has been reached, a red dot appears in the cross hairs.

- 12. The coordinate dimension determined is displayed in the VALUE field.
- 13. Use the ✓ button to apply the determined centre point dimension in the Z cell. The **PICKING** function will close automatically.
- 14. Enter the data and values for the machining task in the input fields of the **DETAIL** tab.
 - Length: Enter 30 mm for the length of the machining task.
 - Width: Enter 12 mm for the width of the machining task.
 - Angle: The value of 0 is already entered for the angle.
 - **Direction:** Select Right for the direction of the machining task.

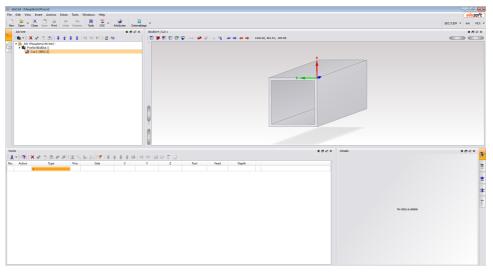


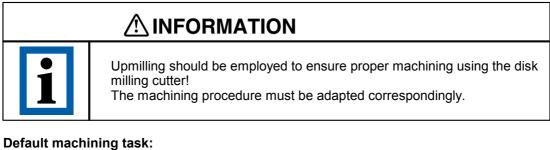
		ad - [Neue Bearbeitung Vorne mit Z-Wert.ecw]							- 1
									eluso
		Den Close Save Print Undo Restore	Tools CNC Attributes Datenablage					582131EM ¥ mm	ELUCA
		rofile view	4 # 2 × 8	0x80x4 Cut 1					₽ Ø R
				😨 🕊 💱 😨 😨 📄 🗃 🥔 🕂 😽 🛶 👄 👘 । 2470.8	6, 361.53, -75.55			(III - 11)	
X 0 → 0 → 0 → 0 → 0 → 0 → 0 → 0 → 0 → 0 →	X → 0 20 Price 20 100 20 100 <td< th=""><th></th><th>Ċ</th><th></th><th></th><th></th><th></th><th></th><th></th></td<>		Ċ						
X 0 → 0 → 0 → 0 → 0 → 0 → 0 → 0 → 0 → 0 →	X → 0 20 Price 20 100 20 100 <td< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>								
chear Type Pio. Sale X V Z Tool Feed Opph Dig Mode Dig<	ticke γρα Pio. 5.4 X V Z Tod Fed Dapth 2 √ Los 0 9 ≠ forc 30 40 40 Advances 10 10 X ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓								
Unive 0 200 foret 50 0.0 4.0 Automatic 100 10 X Main 0.0	2 22 ⁴ line 0 28 five 50 6.0 4.0 Automatic 100 10 X M2 100 10 M • • • • • • • • • • • • • • • • • • •				(8 ज X	Details: Lin	•	Þ	रू स ्
- 10 10 Avie 0.0	. (1) Angle a (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)				€ Ø R X			D :	रू स >
● dectors (rgA ● ● AAdore 270.0 Cester 0.0	● dectors (gds ●) Andecs 270 0 Center (o.5	Active Type Prio.	Side X Y	Z Tool Feed Depth		Length:	30	Þ.	
A.Admet 271.0 Caldes: 0.0	A-dotas: 2010 Centos: 0.0	Active Type Prio.	Side X Y	Z Tool Feed Depth		Length: Width:	30 12	Þ.	m
Cation: 0.0	Caldra 0.0	Active Type Prio.	Side X Y	Z Tool Feed Depth	 9 191	Length: Width: Angle:	30 12 0.0	Þ	
		Active Type Prio.	Side X Y	Z Tool Feed Depth	 9 191	Length: Width: Angle: direction:	30 12 0.0 right	Þ	
Connect	Content	Active Type Prio.	Side X Y	Z Tool Feed Depth	 9 191	Length: Width: Angle: direction: A-Achae:	30 12 0.0 right 270.0	Þ	
		Active Type Prio.	Side X Y	Z Tool Feed Depth	 9 191	Length: Width: Angle: direction: A-Achse: C axis::	30 12 0.0 nght 270.0 0.0	Þ	
		Active Type Prio.	Side X Y	Z Tool Feed Depth	 9 191	Length: Width: Angle: direction: A-Achse: C axis::	30 12 0.0 nght 270.0 0.0	9.	
		Active Type Prio.	Side X Y	Z Tool Feed Depth	 9 191	Length: Width: Angle: direction: A-Achse: C axis::	30 12 0.0 nght 270.0 0.0		m
		Active Type Prio.	Side X Y	Z Tool Feed Depth	 9 191	Length: Width: Angle: direction: A-Achse: C axis::	30 12 0.0 nght 270.0 0.0	b .	
		Active Type Prio.	Side X Y	Z Tool Feed Depth	 9 191	Length: Width: Angle: direction: A-Achse: C axis::	30 12 0.0 nght 270.0 0.0		
		Active Type Prio.	Side X Y	Z Tool Feed Depth	 9 191	Length: Width: Angle: direction: A-Achse: C axis::	30 12 0.0 nght 270.0 0.0	b .	
		Active Type Prio.	Side X Y	Z Tool Feed Depth	 9 191	Length: Width: Angle: direction: A-Achse: C axis::	30 12 0.0 nght 270.0 0.0	•	
		Active Type Prio.	Side X Y	Z Tool Feed Depth	 9 191	Length: Width: Angle: direction: A-Achse: C axis::	30 12 0.0 nght 270.0 0.0	,	
		Active Type Prio.	Side X Y	Z Tool Feed Depth	 9 191	Length: Width: Angle: direction: A-Achse: C axis::	30 12 0.0 nght 270.0 0.0	, ,	



2.2.2.8 Create a new machining task with disk milling cutter

This example shows manual compilation of a machining operation using a side and face milling cutter.





- Slot at beginning of profile, from above with distance between 8 and 22 mm

- Disk milling cutter with 92 mm diameter and a 6 mm blade
- Safety distance in front of and behind machining (outside of profile) 10 mm
- Machining angle -90°
- Work feed rate 100%
- Depth 20 mm

To create the machining operation using side and face milling cutter, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the **TYPE** cell with a double click and select the type **LINE**.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. In the SIDE cell, the TOP machining side is selected automatically.
- 5. For the X-position in the **X** cell, enter either of the variables *TR* or D/2 (tool radius) + 20 mm (depth).
- 6. For the Y-position in the Y cell, enter either of the variables *PW* or *Y* (profile width) + 10 mm (safety distance) + variables *TR* or D/2 (tool radius).
- 7. The **Z** cell already contains 0 mm for the Z-position.
- 8. The tool is defined automatically by default in the Tool cell. A tool can be defined in the**TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 9. The value of 100% is already entered in the FEED cell.



10. The plunge depth must be saved manually in the depth table.

Pressing the **button** allows the depth table to be created manually.

11. Enter the data and values for the machining task in the input fields of the **DEPTH TABLE** tab.

- 1. Row:	Enter 8 mm for the depth in the D cell.
	Deactivate the selection window in the ${f M}$ cell.
	Enter 100% for the feed rate in the F cell.
	Enter 100% for the spindle speed in the RPM cell.
- 2. Row:	Enter 14 mm for the depth in the \mathbf{D} cell (depth of the first machining task, 8 mm + 6 mm for the cutter of the disk milling cutter).
	Activate the selection window in the ${f M}$ cell.
	Enter 100% for the feed rate in the F cell.
	Enter 100% for the spindle speed in the RPM cell.
- 3. Row:	Enter 19 mm for the depth in the \mathbf{D} cell (depth of the second Machining task, 14 mm + 6 mm for the cutter of the disk milling cutter - 1 mm overlap).
	Activate the selection window in the \mathbf{M} cell.
	Enter 100% for the feed rate in the F cell.
	Enter 100% for the spindle speed in the RPM cell.
- 4. Row:	Enter 22 mm for the depth in the D cell (overall depth of the machining task).
	Activate the selection window in the ${f M}$ cell.
	Enter 100% for the feed rate in the F cell.

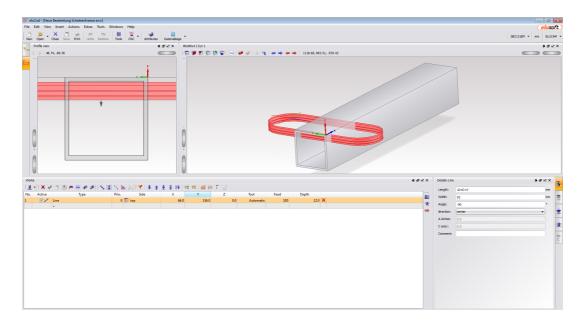
Enter 100% for the spindle speed in the **RPM** cell.

epth t	able		4	882
	D	М	F	RPM
1	8.00 mm		100%	100%
2	14.00 mm	\checkmark	100%	100%
3	19.00 mm	V	100%	100%
4	22.00 mm		100%	100%
				2
		Ą		<u> </u>
	utomatic security distance			

12. Use the *I* button to deactivate the additional depth because the depths correspond directly to the entries.



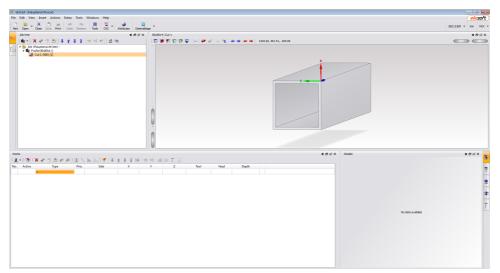
- 13. Enter the data and values for the machining task in the input fields of the **DETAIL** tab.
 - **Length:** Enter 10 mm for the length of the machining task (safety distance) + variable *TD* or *D* (tool diameter) + variable *Y* or *PW* (profile width).
 - Width: Enter 92 mm for the width of the machining task (tool diameter).
 - Angle: Enter -90° for the machining angle.
- 14. Check all inputs in the profile view.





2.2.2.8.1 Creating a new machining task using a disk milling cutter left/rear

This example shows manual compilation of a machining operation using a side and face milling cutter from the left/rear.



i	Upmilling should be employed to ensure proper machining using the disk milling cutter! The machining procedure must be adapted correspondingly. The profile must be appropriately rotated for machining, because it is only possible to use the disk milling cutter from above. The creation of the machining task is performed in the normal profile view.

Default machining task:

- Slot of 6 mm at the rear start of the profile
- Disk milling cutter with 92 mm diameter and a 6 mm blade
- Safety distance in front of and behind machining (outside of profile) 10 mm
- Angle -90°
- Direction, centre
- Work feed rate 100%
- Depth 20 mm

To create the machining operation using side and face milling cutter, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the **TYPE** cell with a double click and select the type **LINE**.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. Use a double click on the SIDE cell to select the REAR machining side in the selection window.
- 5. For the X-position in the **X** cell, enter either of the variables *TR* or *-D*/2 (tool radius) + 20 mm (depth).
- 6. Enter the variable *PW* or Y (profile width) for the Y-position in the Y cell.
- 7. For the Z-position in the **Z** cell, enter either of the variables *-PH* or *-Z* (profile height) 10 mm (safety distance) variable *TR* or *D*/2 (tool radius).



- 8. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 9. The value of 100% is already entered in the FEED cell.
- 10. The plunge depth must be saved manually in the depth table.

Pressing the *button allows the depth table to be created manually.*

11. Enter the data and values for the machining task in the input fields of the **DEPTH TABLE** tab.

- 1. Row:

Enter 6 mm for the depth in the **D** cell.

Activate the selection window in the \boldsymbol{M} cell.

Enter 100% for the feed rate in the ${\pmb F}$ cell.

Enter 100% for the spindle speed in the **RPM** cell.

- 12. Use the III button to deactivate the additional depth because the depths correspond directly to the entries.
- 13. Enter the data and values for the machining task in the input fields of the **DETAIL** tab.

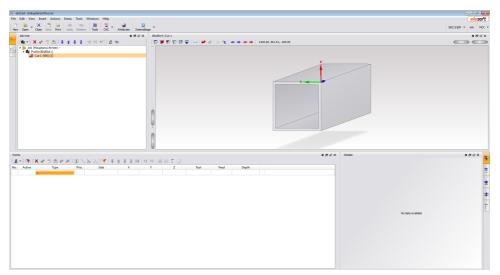
- Length:	Enter 10 mm for the length of the machining task (safety distance) + variable TD or D (tool diameter) + variable PH or Z (profile height) + 10 mm (safety distance).
- Width:	Enter 92 mm for the width of the machining task (tool diameter).
- Angle:	Enter -90° for the machining angle.
- Direction:	Select CENTRE FOR THE DIRECTION.

🛞 eluCad - (New Bearbeitung Schebenfreser Inis-hinten.cow)	
File Edit View Insert Actions Extras Tools Windows Help	(elusoft)
There Open Close Save Pint Lindo Restore Tools CHC Attributes Datentalise	582131EM + mm ELUCAM +
Pofie view d d d ⊇ X Boddov4 [Out 1	● ⊕ E ×
🔄 + 191.21, -51.31 💿 😰 😰 🕲 🕲 😨 🖃 🐲 🌾 + 😽 🛹 👄 794.66, 1237.65, -515.55	
	Deduture 0 d kt X units 10 0 0 2 10 units 10 0 0 2 10 units 10 0 0 2 10 units 10 0 0 2 10
· ·	
	A-Achee: 90.0
	Casis:: 0.0
	Comment:
	dectors (ment)



2.2.2.8.2 Create a new machining operation with disk milling cutter right/front

This example shows manual compilation of a machining operation using a side and face milling cutter from the right/front.



1	Upmilling should be employed to ensure proper machining using the disk milling cutter! The machining procedure must be adapted correspondingly. The profile must be appropriately rotated for machining, because it is only possible to use the disk milling cutter from above. The creation of the machining task is performed in the normal profile view.			

Default machining task:

- Slot of 6 mm at the front end of the profile
- Disk milling cutter with 92 mm diameter and a 6 mm blade
- Safety distance in front of and behind machining (outside of profile) 10 mm
- Angle -90°
- Direction, centre
- Work feed rate 100%
- Depth 20 mm

To create the machining operation using side and face milling cutter, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the **TYPE** cell with a double click and select the type LINE.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. Use a double click on the **SIDE** cell to select the **FRONT** machining side in the selection window.
- 5. For the X-position in the **X** cell, enter either of the variables PL or H (profile length) + variable TR or D/2 (tool diameter) 20 mm (depth).
- 6. The Y cell already contains 0 mm for the Y-position.
- 7. For the Z-position in the Z cell, enter either of the variables -PH or -Z (profile height) 10 mm



(safety distance) - variable TR or D/2 (tool radius).

- 8. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 9. The value of 100% is already entered in the FEED cell.
- 10. Enter the data and values for the machining task in the input fields of the **DEPTH TABLE** tab.
 - 1. Row: Enter 20 mm for the depth in the D cell.

Activate the selection window in the M cell.

Enter 100% for the feed rate in the \mathbf{F} cell.

Enter 100% for the spindle speed in the RPM cell.

- 11. Use the ¹¹ button to deactivate the additional depth because the depths correspond directly to the entries.
- 12. Enter the data and values for the machining task in the input fields of the **DETAIL** tab.

- Length:	Enter 10 mm for the length of the machining task (safety distance) + variable TD or D (tool diameter) + variable PH or Z (profile height) + 10 mm (safety distance).
- Width:	Enter 92 mm for the width of the machining task (tool diameter).

- **Angle:** Enter +90° for the machining angle.
- Direction: Select CENTRE for the direction.

13. Enter the data and values for the machining task in the input fields of the **PARAMETERS** tab.

- Change of orientation:	Enter working orientation no. 1 (90° not mirrored) for the orientation of the profile during machining.
	Info:Machining can only be performed from the top!
- Condition:	No input is required.
- Machine condition:	No input is required.
- Relative position:	No selection can be made.

- Radius compensation: No input is required.

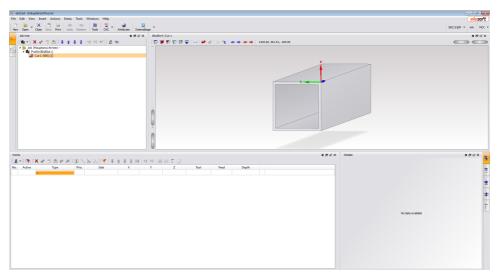


aCad - [Neue Bearbeitung Scheibenfraeser rechts-vorme.ecw]				
Edit View Insert Actions Extras Tools Windows Help				eluso
Dopen Close Save Print Undo Restore Tools CNC	Attributes Datenablage			S8Z131EM ¥ mm ELUCA
Profile view	● 문 X 80x80x4 Cut 1			► 6 H
- 61.79, -86.10				
-	0			
s		(68)	Detalisi Line	16 전 터 X
· × + ⊗ ≥ ≠ = ≠ = < @ \ & \		10××		
X → 3 → .		Food Dath	Length: 10+0+Z+10	70
		Feed Depth	Length: 10+0+2+10 Width: 92	
X → 3 → .	X Y Z Tool	Feed Depth	Length: 10+0+2+10 Width: 92 Angle: 90	nn nn
X √ D ≠ ≠ × ⊗ > × × > ×	X Y Z Tool	Feed Depth 0 20 X	Length: 20+0+2+10 Width: 92 Angle: 90 direction: center	ne ne
X + f ≥ D P # # X E X So X X Active Type Prio. Side Side Y <	X Y Z Tool	Feed Depth 0 20 X	Length: 50+0-22+10 Welth: 92 Angle: 90 Arction: Canter A-Adree: 0.0	ne ne
X √ D ≠ ≠ × ⊗ > × × > ×	X Y Z Tool	Feed Depth 0 20 X	Length: 20-40-82+10 Width: 92 Angle: 90 derectors center A-Adate: 00 C aviso: 0.0	nn nn
	X Y Z Tool	Feed Depth 0 20 X	Length: 50+0-22+10 Welth: 92 Angle: 90 Arction: Canter A-Adree: 0.0	nn nn
X ✓ ○ P = = # # N ≤ 0, 0, 0, 1 Active Type Prio. Side V ✓ Line 0 ₱ front	X Y Z Tool	Feed Depth 0 20 X	Length: 20-40-82+10 Width: 92 Angle: 90 derectors center A-Adate: 00 C aviso: 0.0	m
X + f ≥ D P # # X E X So X X Active Type Prio. Side Side Y <	X Y Z Tool	Feed Depth 0 20 X	Length: 20-40-82+10 Width: 92 Angle: 90 derectors center A-Adate: 00 C aviso: 0.0	m
	X Y Z Tool	Feed Depth 0 20 X	Length: 20-40-82+10 Width: 92 Angle: 90 derectors center A-Adate: 00 C aviso: 0.0	ne ne
X √ D ≠ ≠ × ⊗ > × × > ×	X Y Z Tool	Feed Depth 0 20 X	Length: 20-40-82+10 Width: 92 Angle: 90 derectors center A-Adate: 00 C aviso: 0.0	m
X √ D ≠ ≠ × ⊗ > × ×	X Y Z Tool	Feed Depth 0 20 X	Length: 20-40-82+10 Width: 92 Angle: 90 derectors center A-Adate: 00 C aviso: 0.0	m
X ✓ ○ P = = # # N ≤ 0, 0, 0, 1 Active Type Prio. Side V ✓ Line 0 ₱ front	X Y Z Tool	Feed Depth 0 20 X	Length: 20-40-82+10 Width: 92 Angle: 90 derectors center A-Adate: 00 C aviso: 0.0	m
X ✓ ○ P = = # # N ≤ 0, 0, 0, 1 Active Type Prio. Side V ✓ Line 0 ₱ front	X Y Z Tool	Feed Depth 0 20 X	Length: 20-40-82+10 Width: 92 Angle: 90 derectors center A-Adate: 00 C aviso: 0.0	m
Active Type Prio. Side	X Y Z Tool	Feed Depth 0 20 X	Length: 20-40-82+10 Width: 92 Angle: 90 derectors center A-Adate: 00 C aviso: 0.0	m



2.2.2.9 Creating a new machining task on a free side

This example shows the manual creation of a machining task on a freely defined side.



Default machining task:

- Circle pocket with 12 mm diameter
- Position top; X = 50 mm; Y = 20 mm
- Work feed rate 100%
- Depth 10 mm
- A-axis 45°
- C-axis 180°
- Pre pos. dist. 10 mm

In order to create a machining task on a free side, perform the following steps:

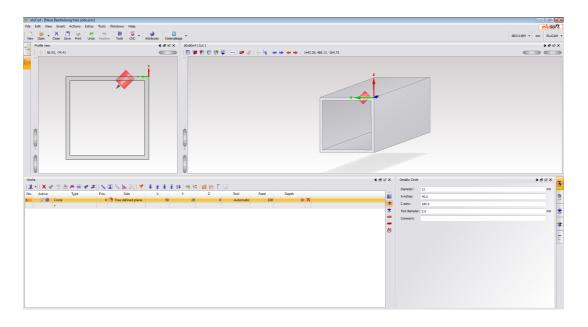
- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the **TYPE** cell with a double click and select the type **CIRCLE**.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. Double click on the SIDE cell to select the FREE SIDE machining side in the selection window.
- 5. Enter 50 mm for the X-position in the X cell.
- 6. Enter 20 mm for the Y-position in the Y cell.
- 7. The Z cell already contains 0 for the Z-position.
- 8. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 9. The value of 100% is already entered in the FEED cell.
- 10. Enter the value of 10 mm in the **DEPTH** cell. Use the ^{the local} button to trigger the automatic wall detection, which is transferred to the depth table.

- 11. Enter the data and values for the machining task in the input fields of the **DETAIL** tab.
 - Diameter: Enter 12 mm for the diameter of the machining task.
 - **A-axis:** Enter 45° for the angle setting of the A-axis.
 - C-axis: Enter 180° for the machining angle of the C-axis.



- Tool diameter:

Diameter of the tool used. Only required if no automatic assignment is to be made!





2.2.2.10 Creating a new machining task for a free side using picking

This example shows the manual creation of a machining task on a freely defined side.

euCad - [Hauptansicht.ecw]		- @ <mark>- </mark>
File Edit View Inset Actions Extras Tools Windows Help		(elusoft)
New Open Close Seve Print Undo Restore Tools CNC Attributes Datamable	•*	S8Z131BH ¥ mm NCK ¥
	80x80x41Cut 1	● & S ×
	😨 🕊 💱 😨 😨 🛏 🕊 🛷 + ¹ % ← ↔ ↔ → 1443.52, 493.53, -165.06	
Works	● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●	₽øs× <mark>3</mark>
[圭•]◎ ★★◎回## 国际版为 ▼ 李金玉玉好 1		<u> </u>
No. Active Type Prio. Side X	Y Z Teol Feed Depth	
		*
		+
		10 12 12 12 12 12 12 12 12 12 12 12 12 12
		E
		No data available

Default machining task:

- Line of length 30 mm; width 15 mm
- Position front; X = 100 mm
- Determine Y and Z-dimensions
- Determine A and C-angles
- Desired position, "lower corner" on the profile
- Work feed rate 100%
- Depth 2 mm

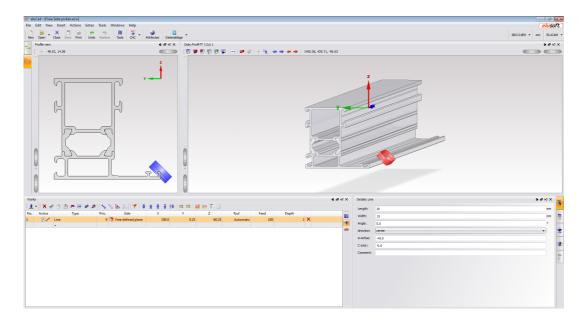
In order to create a machining operation for a free side using picking, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the **TYPE** cell with a double click and select the type **LINE**.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. Double click on the SIDE cell to select the FREE SIDE machining side in the selection window.
- 5. The FREE SIDE selection window appears in the 3D view.
- 6. Pressing the button displays the input menu of the new side.
- 7. Pressing the button activates picking.
- 8. Move the mouse over the plane which is to be machined.
- 9. Click on the centre point of the plane with the left mouse button.
- 10. Enter the data and values for the machining task in the input fields of the **FREE SIDE** menu.
 - Free side: Standard is already entered.
 - Name: Enter line, 45° front.
 - Angle: Enter 0° for the machining angle.
 - **A-axis:** The value of -45° is already entered for the A-axis angle setting.
 - **C-axis:** The value of 0° is already entered for the C-axis angle setting.
 - X offset: Enter 100 mm for the X-position.



- Y offset: The value of 0.25 mm is already entered for the Y-position.
- Z offset: The value of -60.25 mm is already entered for the Z-position.
- 11. Use the button to add the free side just created to the table.
- 12. Press the **SIDE** cell.
- 13. Enter 100 mm for the X-position in the X cell.
- 14. The Y cell already contains 0 mm for the Y-position.
- 15. The Z cell already contains 0 mm for the Z-position.
- 16. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 17. The value of 100% is already entered in the **FEED** cell.
- 18. Enter the value of 2 mm in the **DEPTH** cell. Use the ^{the button} to trigger the automatic wall detection, which is transferred to the depth table.

- 19. Enter the data and values for the machining task in the input fields of the **DETAIL** tab.
 - Length: Enter 30 mm for the length of the machining task.
 - Width: Enter 15 mm for the width of the machining task.
 - **Angle:** The value of 0° for the machining angle is already entered.
 - **Direction:** The direction of the machining task is already entered as Centre.
- 20. Check all inputs in the profile view.





2.2.2.11 Creating a new machining task as a machining series

This example shows manual compilation of a machining operation as a machining chain.

Cad - [Hauptansicht.ecw]	
File Edit View Insert Actions Extras Tools Windows Help	/ elusoft
New Open Clear Save Print Lindo Rastore Tools CNC Attributes Deterministics	S82135H • mm HCK •
Xob tree	大臣 Beet
	1 4 4 4 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Webs	4 <i>6</i> × x Deale: 9 <i>6</i> × x
[重•1]◎[★★③回非非国际版为[▼]非生于经[标符]目目目目	
No. Active Type Prio. Side X Y Z Tool	ed Copela
	1
	*
	*
	-
	E
	No data available

Default machining task:

- Bore with 15 mm diameter
- Position top; X = 50 mm; Y = 20 mm
- The machining task is to be repeated 5 times horizontally at a spacing of 30 mm.
- Work feed rate 100%
- Depth 10 mm

To create the machining tasks as a series of drilled holes, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the TYPE cell with a double click and select the type DRILLING.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. In the **SIDE** cell, the **TOP** machining side is selected automatically.
- 5. Enter 50 mm for the X-position in the X cell.
- 6. Enter 20 mm for the Y-position in the Y cell.
- 7. The Z cell already contains 0 for the Z-position.
- 8. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 9. Enter the value of 10 mm in the **DEPTH** cell. Use the button to trigger the automatic wall detection, which is transferred to the depth table.

- 10. Enter the data and values for the machining task in the input fields of the **DETAIL** tab.
 - **Diameter:** Enter 15 mm for the diameter of the machining task.



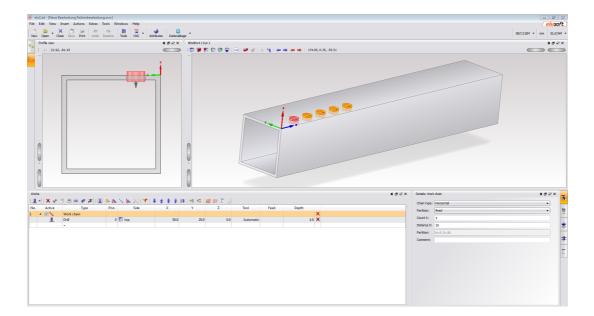
11. Use the 🏊 button to change the selected machining task into a machining series.

No.	Active	Туре	Prio.	Side	Х	Y	Z		
1	4 🔽 🔩	Work chain						×	
	3	Drill	0	🗊 top	50.000	20.000	0.000	×	
		+							

- 12. In the machining task list, a machining series row is automatically inserted before the selected row and is opened.
- 13. Enter the data and values for the machining series in the input fields of the **DETAIL** tab.
 - Series type: Select the HORIZONTAL series type.
 - Division: Select FIXED for the division.
 - Quantity X: Enter 5 for the quantity of machining tasks.
 - **Distance X:** Enter 30 mm for the spacing of the machining task.



In the profile view, the individual machining tasks in the series are displayed in a different colour to make their association easier to recognise.





2.2.2.12 Creating a new machining task with combo-thread

This example shows the manual creation of a tapping machining task.

🖲 eluCad - [Hauptansicht.ecw]			
File Edit View Insert Actions Extras Tools Windows Help			elusoft]
New Open Close Save Print Undo Restore Tools CINC Attributes Determable	, *		S82131EH ¥ mm NCX ¥
Job tree d a R X			B ⊕ X
K K	IBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB	1443.92, 491.51, -165.06	
	0 0		
Works	0	4 ♂ R ² × Details:	ው ው ብ × 🜉
1.1.1、1、1、1、1、1、1、1、1、1、1、1、1、1、1、1、1、1			POSX N
No. Active Type Prio. Side X	Y Z Tool Feed Depth		7
· · · · · · · · · · · · · · · · · · ·			-
			ż
			*
			5 * *
			No data available

Default machining task:

- M8 tapping machining task
- Position top; X = 50 mm; Y = 30 mm
- Work feed rate 80%
- Depth corresponds to tapping tool selected

To create the tapping machining task, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the **TYPE** cell with a double click and select the type **TAP**.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. In the SIDE cell, the TOP machining side is selected automatically.
- 5. Enter 50 mm for the X-position in the X cell.
- 6. Enter 30 mm for the Y-position in the Y cell.
- 7. The Z cell already contains 0 for the Z-position.
- 8. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 9. Enter the value of 80% in the Feed rate cell.
- 10. Enter the value of 10 mm in the **DEPTH** cell. Use the ^{the button} to trigger the automatic wall detection, which is transferred to the depth table.

- 11. Enter the data and values for the machining task in the input fields of the **DETAIL** tab.
 - **Diameter:** Enter 8 mm for the diameter of the machining task.
 - Without core hole: Activate field

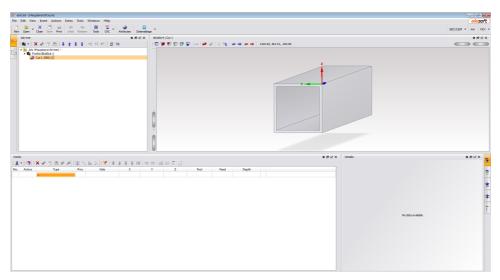


uCad - [Neue Bearbeitung Kombi Gewinde.ecw]					
Edit View Insert Actions Extras Tools V					eluse
Open Close Save Print Undo Restore	Tools CNC Attributes Datenablage	•			S8Z131EM + mm ELUC
Profile view	4 8 8 X				► Ø 4
71.58, -86.10		😨 🍺 🗑 😰 😨 🚍 😅 🥔 🕂 🦌 🛶 🛶 👄 🔰 1442.7	, 505.37, -146.55		
Ó			, ,		
				~	
s			4 Ø R X	Detals: Tap)⊮ ∂' ਜੋ ×
• 🗙 🛷 🕥 🖻 🛲 🖶 ≢ 🍂 🗓		** ** # = T ::	• đữ X		≱ਰਾਜ ×
▼ ★ ★ ⑦ ● ₽ ● ₽ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	Side X Y	Z Tool Feed Depth		Diameter: 8.0	
	1 ¹ , ¹ / ₂ , ¹ / ₂ , ¹ / ₂ ¹ /	91 12 III P C Z Tool Feed Depth 30 0.0 Advents 80 4.0 X	2	Demeter: 8.0 A-Achse: 0.0	
▼ ★ ★ ⑦ ● ₽ ● ₽ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	Side X Y	Z Tool Feed Depth	 21 12	Diemeter: 8.0 A-Achse: 0.0 C axis:: 0.0	
	Side X Y	Z Tool Feed Depth	0.1 12 12	Diameter: 8.0 A-Achies: 0.0 C axiss: 0.0 Comment: 0.0	
	Side X Y	Z Tool Feed Depth	 21 12	Diameter: 8.0 A-Actes: 0.0 Castis: 0.0 Comment:	
- X + 3 ≥ = = = + ≠ 1 ≤ Active Type Prio. ✓	Side X Y	Z Tool Feed Depth	0.1 12 12	Diameter: 8.0 A-Achies: 0.0 C axiss: 0.0 Comment: 0.0	
- X + 3 ≥ = = = + ≠ 1 ≤ Active Type Prio. ✓	Side X Y	Z Tool Feed Depth	0.1 12 12	Diameter: 8.0 A-Actes: 0.0 Castis: 0.0 Comment:	
X + N P P Image: Second secon	Side X Y	Z Tool Feed Depth	0.1 12 12	Diameter: 8.0 A-Actes: 0.0 Castis: 0.0 Comment:	
Active Type Prio.	Side X Y	Z Tool Feed Depth	0.1 12 12	Diameter: 8.0 A-Actes: 0.0 Castis: 0.0 Comment:	
X √ ⇒ ≠ ≠ × I ×	Side X Y	Z Tool Feed Depth	0.1 12 12	Diameter: 8.0 A-Actes: 0.0 Castis: 0.0 Comment:	
- X + 3 ≥ = = = + ≠ 1 ≤ Active Type Prio. ✓	Side X Y	Z Tool Feed Depth	0.1 12 12	Diameter: 8.0 A-Actes: 0.0 Castis: 0.0 Comment:	
- X + 3 ≥ = = = + ≠ 1 ≤ Active Type Prio. ✓	Side X Y	Z Tool Feed Depth	0.1 12 12	Diameter: 8.0 A-Actes: 0.0 Castis: 0.0 Comment:	
X √ ⇒ ≠ ≠ × I ×	Side X Y	Z Tool Feed Depth	0.1 12 12	Diameter: 8.0 A-Actes: 0.0 Castis: 0.0 Comment:	
X √ ⇒ ≠ ≠ × I ×	Side X Y	Z Tool Feed Depth	0.1 12 12	Diameter: 8.0 A-Actes: 0.0 Castis: 0.0 Comment:	
X √ ⇒ ≠ ≠ × I ×	Side X Y	Z Tool Feed Depth	0.1 12 12	Diameter: 8.0 A-Actes: 0.0 Castis: 0.0 Comment:	
X √ ⇒ ≠ ≠ × I ×	Side X Y	Z Tool Feed Depth	0.1 12 12	Diameter: 8.0 A-Actes: 0.0 Castis: 0.0 Comment:	



2.2.2.13 Creating a new machining task with a countersink

This example shows the manual creation of a countersink.



Default machining task:

- Countersink with a diameter of 10 mm at the outside edge of the part
- Deburr angle 90°
- Position top; X = 50 mm; Y = 30 mm
- Work feed rate 100%
- Determine depth

To create the countersink, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the **TYPE** cell with a double click and select the type **COUNTER-SINK**.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. In the SIDE cell, the TOP machining side is selected automatically.
- 5. Enter 50 mm for the X-position in the X cell.
- 6. Enter 30 mm for the Y-position in the Y cell.
- 7. The Z cell already contains 0 for the Z-position.
- 8. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- Enter the value of 5 mm in the DEPTH cell. Use the button to manually create or change the depth table.
 Info: For some counter sinks, no tool tip is present. The software nevertheless always refe-

rences the point of the tip and calculates the corresponding values based on this!

- 10. Enter the data and values for the machining task in the input fields of the **DETAIL** tab.
 - **Diameter:** The diameter is displayed automatically. The value is calculated from the deburr angle and the depth.
 - **Deburr angle:** Enter 90° for the deburr angle.



aCad - [Neue Bearbeitung Senkung.ecw]								- 8
Edit View Insert Actions Extras Tools								eluso
Deen Close Save Print Undo Restore	Tools CNC Attributes Datenabl	101 ×					\$82131EM ¥ mm	eLUCA
Profile view		80x80x4 Cut 1						► # 82
- 29.17, 0.89		8999998	🕊 🗳 + 🤫 🖛 🗰 🗰 👘					
ń		ė						
		Ļ						
s • X ≠ 3 ≥ ≠ ≠ 1 × 3 Active Type Price	Side X	Y Z Too	col Feed Depth	ৰ <i>ক</i> ন x	Details: Debu Diameter: Deburr angle	10.0	ŀ	क स ×
Active Type Prip.	Side X	Y Z Too	Automatic 5 🗙	0	Diameter:	10.0 90.0	Þ	
Active Type Prip.	Side X	Y Z Too		0	Diameter: Deburr angle	10.0 90.0 0.0	ŀ	
Active Type Prio.	Side X	Y Z Too	Automatic 5 🗙	0	Diameter: Deburr angle A-Achse:	10.0 90.0 0.0	Þ	
Active Type Prip.	Side X	Y Z Too	Automatic 5 🗙	0	Diameter: Deburr angle A-Achse: C axis::	10.0 90.0 0.0	•	
Active Type Prip.	Side X	Y Z Too	Automatic 5 🗙	0	Diameter: Deburr angle A-Achse: C axis::	10.0 90.0 0.0	Þ	
Active Type Prip.	Side X	Y Z Too	Automatic 5 🗙	0	Diameter: Deburr angle A-Achse: C axis::	10.0 90.0 0.0	Þ	
Active Type Prip.	Side X	Y Z Too	Automatic 5 🗙	0	Diameter: Deburr angle A-Achse: C axis::	10.0 90.0 0.0	•	
Active Type Prip.	Side X	Y Z Too	Automatic 5 🗙	0	Diameter: Deburr angle A-Achse: C axis::	10.0 90.0 0.0	•	
Active Type Prio.	Side X	Y Z Too	Automatic 5 🗙	0	Diameter: Deburr angle A-Achse: C axis::	10.0 90.0 0.0	Þ	
Active Type Prip.	Side X	Y Z Too	Automatic 5 🗙	0	Diameter: Deburr angle A-Achse: C axis::	10.0 90.0 0.0	•	
Active Type Prip.	Side X	Y Z Too	Automatic 5 🗙	0	Diameter: Deburr angle A-Achse: C axis::	10.0 90.0 0.0	,	
Active Type Prip.	Side X	Y Z Too	Automatic 5 🗙	0	Diameter: Deburr angle A-Achse: C axis::	10.0 90.0 0.0	•	



2.2.2.14 New machining task, drilled hole with countersink

This example shows the counter sinking of a drilled hole.

eluCad - [Hauptansicht.ecw]		
File Edit View Insert Actions Extras Tools Windows Help		(elusoft)
New Open Close Save Print Undo Restore Tools CNC Attributes Detemble	.*	5821319H ¥ mm NCK ¥
	80x80x41Cut 1	a ⊕ ⊛ ≈ ×
Image → X + + 3 → 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1	1 😨 🖉 😰 🐯 😰 🚍 🛹 🛷 🕂 4 🦌 🖛 👄 🗰 1443.52, 491.51, -165.06	
Works [호· 1명] ★ ★ 8 의 # # [표 5, 8, 5] ♥ [추 ☆ 중 중 54 [**		R X Details: Details: Details: R X
No. Active Type Prio. Side X	Y Z Teol Feed Depth	
		n:
		*
		ž 1
		1
		No data available

Default machining task:

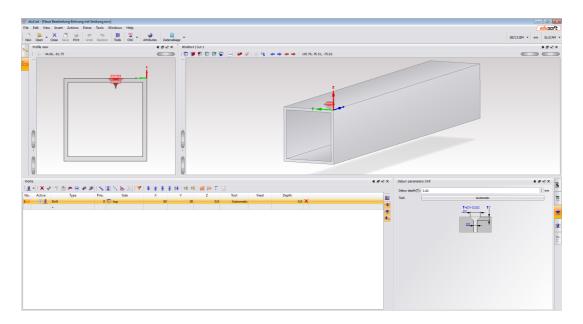
- Countersink with a diameter of 16 mm for a drilled hole with a diameter of 10
- Deburr angle 90°
- Position top; X = 50 mm; Y = 30 mm
- Work feed rate 100%
- Determine depth

To create the countersink, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the TYPE cell with a double click and select the type DRILLING.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. In the SIDE cell, the TOP machining side is selected automatically.
- 5. Enter 50 mm for the X-position in the X cell.
- 6. Enter 30 mm for the Y-position in the Y cell.
- 7. The Z cell already contains 0 for the Z-position.
- 8. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 9. Enter the value of 10 mm in the **DEPTH** cell. Use the **b**utton to manually create or change the depth table.
- 10. Pressing the **Solution** opens the **COUNTERSINK PARAMETERS** tab.
- 11. Enter 3 mm in the COUNTERSINK DEPTH cell. Info:Calculation (D1 screw head - D2 drilled hole) / 2 For some counter sinks, no tool tip is present. The software nevertheless always references the point of the tip and calculates the corresponding values based on this!



12. Check all inputs in the profile view.





2.2.2.15 Creating a new machining task with a saw cut at the beginning of the part This example shows the manual creation of a saw-cut machining task.

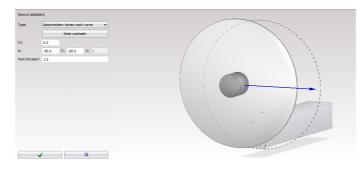
eluCad - [Hauptansidit.ecv]		
File Edik View Inset Actions Estras Tools Windows Help		(elusoft
New Open Close Save Print Undo Restore Tools CNC Attributes Determininger		982131BH * mm NCK *
30 tree 4 관 규 × 80x80x41Cut 1		∎ B R X
····································	443.92, 491.51, -165.06	
W	4 Ø R X Details:	▶ መ ብ× _
■ - 「● × + ○ 回 # # 国 N あ 入 ▼ 手 幸 王 手 好 12 12 目目 目 日	4 P K A Decase:	Post S
No. Active Type Prio. Side X Y Z Tool Feed Depth		-
	No dita an	

Default machining task:

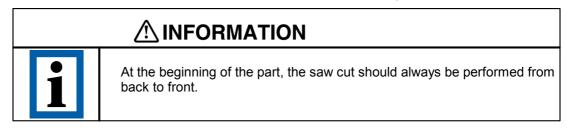
- Position in X = 10 mm
- The cutoff is performed from back to front
- Saw blade tilting angle A equals 90°
- Saw blade tilting angle C equals -90°
- Additional depth of 1 mm

To create the saw cut machining task, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the **TYPE** cell with a double click and select the type **SAW ASSI-STANT**.
- 3. Selecting the **PROFILE VIEW** field automatically opens the saw assistant.



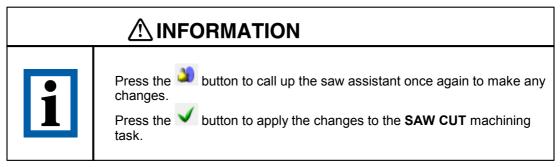
4. In the **TYPE** selection field, select the *Cut off: from back to front* option.



5. Use the **CHANGE SIDE** button to define the side of the spindle to be used.



- 6. Enter 10 mm in the **X1** field for the start position in the X-direction.
- 7. In the A field, enter 90° for the tilting angle of the saw blade.
- 8. In the **C** field, enter 90° for the pivoting angle of the saw blade.
- 9. Enter the value of 1 mm in the ADDITIONAL DEPTH field.
- 10. Check all saw cut assistant inputs in the profile view.
- 11. Press the **V** button to apply the values to the **SAW CUT** machining task.



- 12. The machining task is activated automatically but can be deactivated at any time.
- 13. No entries are required on the **DETAIL** tab.
- 14. No entries are required on the **PARAMETERS** tab.
- 15. Check all inputs in the profile view.

🖉 eluCad - [Neue Bearbeitung Saegeschnitt Anfang.ecw]				- P
File Edit View Insert Actions Extras Tools Windows Help				eluso
New Open Close Save Print Undo Restore Tools CNC Attributes Datenia	101 T			S8Z131EM * mm ELUCA
Job tree d d 🕫 🕄 🔪	80x80x4 Cut 1			► # B
i 📾 ▼ i 🗙 💉 🖗 🖻 i 🦆 🛊 🎍 👔 🛤 🛤 🖬 i 🖆 👘 👘 i	🔋 😰 😰 😰 😰 🕞 😅 🧳 🕂 🦌 🖛 👄 🗰 853.69, 1101.03, -211.19			
Works		C Details: Sawing		⊫∌er≓×
1 2 ▼ X + 3 @ @ # # # 1 3 2 3 3 3 3 Y \$ 4 1 2 3 No. Active Type Prio. Side X		Starting point x:	0.0	m
No. Active Type Prio. Side X 1 V a) Sawing 0 % Cut 2*	Automatic 100		0.0	m
+ very cons	3	End point X:	-80.0	m
		End point Y	0.0	mm
		Notch angle:	0.0	•
		Sawing depth correct	on: 🗸	
		Max. sawing depth:	81.000000	m
		Sawing blade:	left	
		A-Achse:	90	
		C axis::		
			-40	
		Comment:		



2.2.2.16 Creating a new machining task with a saw cut at the end of the part This example shows the manual creation of a saw-cut machining task.

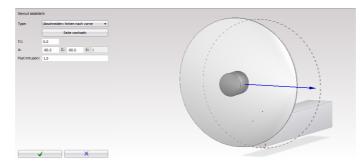
🗑 duCad - [Hauptansidht.cov]	
File Edit View Inset Actions Extras Tools Windows Help	(elusoft)
New Open Cose Save Print Undo Restore Tools CVC Attributes Destinating	9823339H ¥ mm HCX ¥
Job tree 4 # # A X 80x80x4 [Out 1	×se∢
(m) = (X + 2) (2) (2) (2) (2) (2) (2) (2) (2) (2)	2, 491.51, -165.06
Web	€ Ø R X Details: ■ Ø R X _
(土·10) × 4 0 回 # # 国际版为 ▼ キャラ子 # # # # # # # # # # # # # # # # # # #	North Come
No. Active Type Prio. Side X Y Z Tool Feed Depth	· · · · · · · · · · · · · · · · · · ·
	*
	*
	E
	No data available

Default machining task:

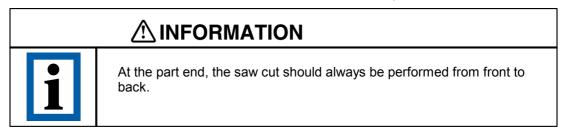
- Position in X = PL-10 mm
- The cutoff is performed from front to back
- Saw blade tilting angle A equals -90°
- Saw blade tilting angle C equals -135°
- Additional depth of 1 mm

To create the saw cut machining task, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the **TYPE** cell with a double click and select the type **SAW ASSI-STANT**.
- 3. Selecting the **PROFILE VIEW** field automatically opens the saw assistant.



4. In the **TYPE** selection field, select the *Cut off: from front to back* option.



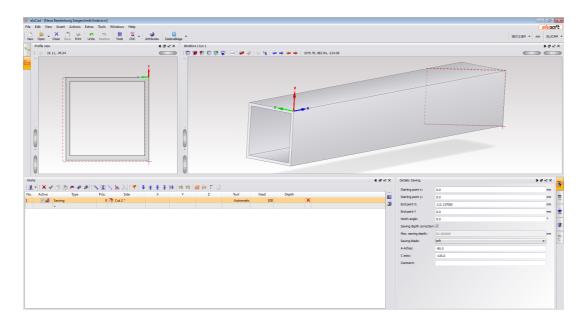
5. Use the **CHANGE SIDE** button to define the side of the spindle to be used. This selection is made to avoid collisions with the spindle and to achieve optimal machining.



- 6. In the **X1** field, enter either of the variables *PL* or *H* (profile length) 10 mm for the start position in the X-direction.
- 7. In the A field, enter -90° for the tilting angle of the saw blade.
- 8. In the **C** field, enter -135° for the pivoting angle of the saw blade.
- 9. Enter the value of 1 mm in the **ADDITIONAL DEPTH** field.
- 10. Check all saw cut assistant inputs in the profile view.
- 11. Press the **V** button to apply the values to the **SAW CUT** machining task.

1	Press the saw assistant once again to make any changes. Press the volution to apply the changes to the SAW CUT machining task.

- 12. The machining task is activated automatically but can be deactivated at any time.
- 13. No entries are required on the **DETAIL** tab.
- 14. No entries are required on the **PARAMETERS** tab.
- 15. Check all inputs in the profile view.





2.2.2.17 Creating a new machining task with a saw cut

This example shows the manual creation of a saw cut.

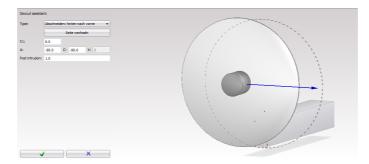
🗑 eluCad - [Hauptansicht.ecw]		6
File Edit View Insert Actions Extras Tools Windows Help		elusoft)
New Open Close Save Print Undo Restore Tools CNC Attributes Daterable	a *	5821318H * mm NCK *
	80x80x41Cut 1	⊪a-a ×
[m] - X + 2 = ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	🔁 🗯 🔁 🕲 🦉 🔚 😅 🌾 + 4 a 👄 👄 + 1442.02,491.23,-165.06	
••••••••••••••••••••••••••••••••••••	V Z W Fred Daph	×*** 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
	No data makilia	a≢ E

Default machining task:

- Position in X = 50 mm
- The cut is performed from back to front with a depth of 10 mm
- Saw blade tilting angle A equals -90°
- Saw blade tilting angle C equals -90°

To create the saw cut machining task, perform the following steps:

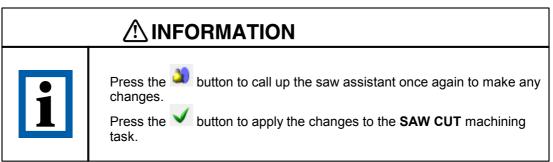
- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the **TYPE** cell with a double click and select the type **SAW ASSI-STANT**.
- 3. Selecting the **PROFILE VIEW** field automatically opens the saw assistant.



- 4. In the TYPE selection field, select the Cut in: from back to front option.
- 5. Use the **CHANGE SIDE** button to define the side of the spindle to be used. This selection is made to avoid collisions with the spindle and to achieve optimal machining.
- 6. Enter 50 mm in the X1 field for the start position in the X-direction.
- 7. Enter -10 mm in the **Z1** field for the position in the Z-direction.
- 8. In the **A** field, enter -90° for the tilting angle of the saw blade.
- 9. In the **C** field, enter -90° for the pivoting angle of the saw blade.
- 10. Check all saw cut assistant inputs in the profile view.



11. Press the **V** button to apply the values to the **SAW CUT** machining task.



- 12. The machining task is activated automatically but can be deactivated at any time.
- 13. No entries are required on the **DETAIL** tab.
- 14. No entries are required on the **PARAMETERS** tab.
- 15. Check all inputs in the profile view.

eluCad - [Neue Bearbeirung Steepeeinschnitt.ecw]			3 (Q =
File Edit View Insert Actions Extras Tools Windows Help			elusoft
			SBZ131EM + mm ELUCAM
Profile view			► #F 82 >
🛄 ! + 91.80, -76.64 🛛 📰 😰 🕲 😰 🕲 😨 🖃 🖃 😾 🗰 + 😽 159.45, 39.91, -110.22			
[±] ▼ X ∲ ② □ ≠ ≠ ≠ [1], [±] 1, [b,], [¥] \$ ± ± ± ≠ ↓ 10, 10 = □ □ No. Active Yope Pro. Side X Y Z Tool Feed Depth 1 770 Feed 00 Extended 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0		g point x: g point y: int X: int Y	
	Sawing	depth correction:	z z
			10.000000 mm
	Sawing		left •
	A-Acho		270.0
	C axis:: Comme		-270.0
	Comme	er (L)	



2.2.2.18 Creating a new machining task with a saw cut and an additional notch

This example shows the manual creation of a saw cut with an additional notch.

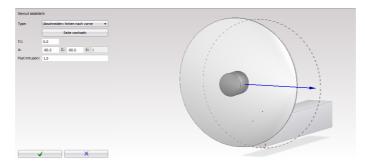
@ duCad - [Hauptansicht.ecw]		
File Edit View Insert Actions Extras Tools Windows Help		(elusoft)
New Open Clear Save Print Undo Restore Tools OKC Attributes Determining		S82133BH ¥ mm NCK ¥
Job tree 4 문 규 × 80x80x4 Cut 1		▶∂ ≈ ×
	😑 😎 🌾 🕂 🙀 🗰 🗰 🗰 1043.02, 491.51, -165.06	
C 4 3 00 3)		
web [≟-10] X ≠ 0 回 # # 图 5 8 51 Y # # # # # # # # # # # # # # # # # #	4 ♂ R' × Details:	⇒erer× 🟅
	Ind field Dipth	No and a market

Default machining task:

- Position in X = 50 mm
- The cut is performed from back to front with a depth of 20 mm
- Saw blade tilting angle A equals -90°
- Saw blade tilting angle C equals -90°
- Additional notch with an angle of 45°

To create the saw cut machining task, perform the following steps:

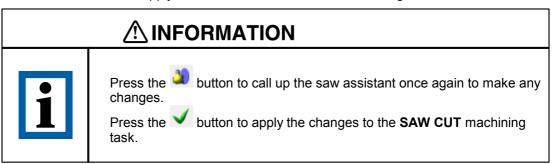
- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the **TYPE** cell with a double click and select the type **SAW ASSI-STANT**.
- 3. Selecting the **PROFILE VIEW** field automatically opens the saw assistant.



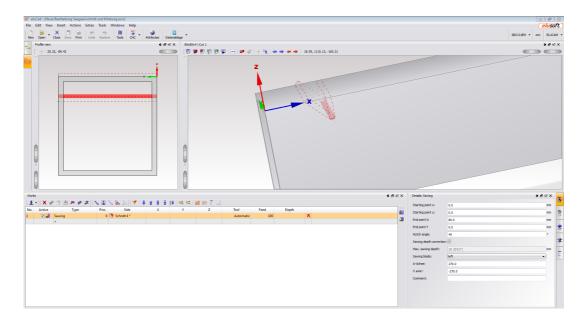
- 4. In the **TYPE** selection field, select the *Cut in: from back to front* option.
- 5. Use the **CHANGE SIDE** button to define the side of the spindle to be used. This selection is made to avoid collisions with the spindle and to achieve optimal machining.
- 6. Enter 50 mm in the X1 field for the start position in the X-direction.
- 7. Enter -20 mm in the Z1 field for the position in the Z-direction.
- 8. In the **A** field, enter -90° for the tilting angle of the saw blade.
- 9. In the **C** field, enter -90° for the pivoting angle of the saw blade.
- 10. Check all saw cut assistant inputs in the profile view.



11. Press the V button to apply the values to the **SAW CUT** machining task.



- 12. The machining task is activated automatically but can be deactivated at any time.
- 13. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 14. The value of 100% is already entered in the FEED cell.
- 15. Enter the data and values for the machining task in the input fields of the **DETAIL** tab.
 - **Notch angle:** Enter 45° for the notch angle.
 - Correct saw depth: Activate the correction of the saw depth.
 - Max. saw depth: The display is automatic.
 - Saw blade: Set the selection to LEFT.
 - A-axis: The value is generated automatically by the saw assistant.
 - C-axis: The value is generated automatically by the saw assistant.
- 16. No entries are required on the **PARAMETERS** tab.
- 17. Check all inputs in the profile view.





2.2.2.19 Creating a machining task with notching

This example shows the manual creation of a notch.

🞯 duCad - [Hauptansidh.ecw]	
File Edit View Insert Actions Extras Tools Windows Help	elusoft)
New Open Close Seve Print Undo Restore Tools DDC Attributes Determology	582133BH ¥ mm NCX ¥
Job tree di	● 49 @ X
Image: Image: X Image: Market State Image: Market State	W1.51, -165.06 CC
Works	ब <i>क</i> स × े Details: ● क स ×]
<u>↓</u> + (1) (1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2	
No. Active Type Prio. Side X Y Z Tool Feed Depth	
	× × × × × × × × × × × × × × × × × × ×
	*
	= \$ ₽
	No data available

Default machining task:

- Notch: Position left; X = 50 mm; Z = 20 mm
- Type 1 notch

To create the notch, perform the following steps:

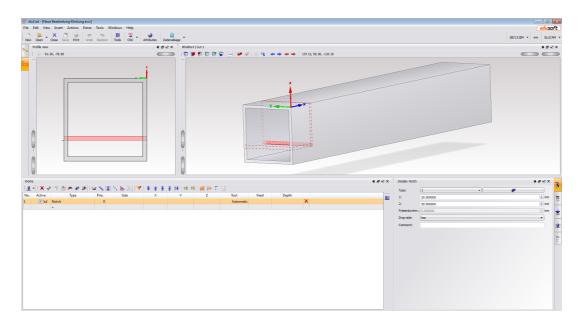
- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the **TYPE** cell with a double click and select the type **NOTCH**.
- 3. By selecting the next cell, the notch automatically opens.
- 4. The machining task is activated automatically but can be deactivated at any time.
- 5. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 6. Enter the data and values for the machining task in the input fields of the **DETAIL** tab.

- Туре:	Selection of the type and side of the notch
1 •	Select type no. 1 via the selection dialog.
#	Select notch at the beginning of the part.
- 1:	Enter 50 mm for the X-position of the notch.
- 2:	Enter 20 mm for the Y-position of the notch.
- Waste material plane:	The desired plane must be defined via the selection field. The default waste material plane presetting is top.

7. No entries are required on the PARAMETERS tab.



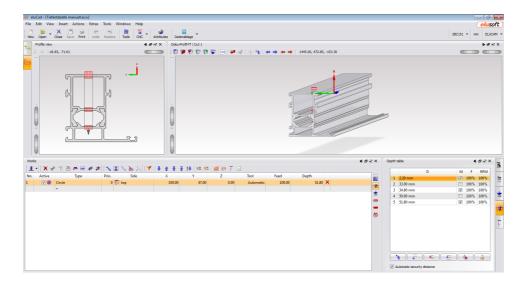
8. Check all inputs in the profile view.





2.2.3 Depth table

The **DEPTH TABLE** describes tool immersion in the material. It is primarily important when machining through the individual chambers.



1	The starting point is the same as the retraction point and therefore the point of movement to the next machining operation.

Only the individual walls, the safety distances and the machining speeds on the workpiece are described in the **DEPTH TABLE**. The actual values of the workpiece must always be entered. The safety distances and the additional depth are added automatically.

Depending on the requirements, the feed rate and the spindle speed can be set for the respective machining task and the depth step.

The DEPTH TABLE is created manually 8th or automatically 8th.



2.2.3.1 Creating a depth table manually

This example shows the manual creation of a depth table.

	eluCad - [Hauptansicht.ecw]		- 4 🛋
			elusoft)
	New Open Close Save Print Undo Restore Tools CNC Attributes Datenable	¢ [▲]	582131EM • mm NCX •
A by Contrast term Control		80x80x4 Cut 1	● 47 H2 ×
	Image X & S B I ↓ ↑ ↓ ↑ In In In In B H	😰 🍺 🕅 😨 🖕 😑 😅 🚸 🕂 🙀 🖛 👄 🗰 1443.92,491.51,-555.06	
Image: Contract of the state of the st	A production tents		
Note Type Proc. Side X Y Z Tool Feed Depth No.	l		
Image: Solution of the soluti			P B B X
		Y Z Tool Feed Depth	***

The following steps are necessary to create a **DEPTH TABLE** manually:

- 1. Open the PROGRAM EDITOR and enter the desired machining task.
- 2. Enter the depth of the machining task in the **PLUNGE DEPTH** input field on the **DETAIL** tab.
- 3. The 💷 button can be used to have the depth calculated automatically. The values can then be used as a basis and can be edited.
- 4. Open the depth table using the **I** button on the **DETAIL** tab or using the **DEPTH TABLE** tab.



The actual values of the profile must always be entered. Safety distances and additional depth are added automatically.

- 5. Select the first line.
 - Enter the dimension of the material thickness (wall) in cell **D**.
 - Activate the selection field in cell **M** to mark the existing material (wall) in the size range.
 - Enter the feed rate in percent for the material (wall) in cell F.
 - Enter the spindle speed in percent for the material (wall) in the RPM cell.

Note: If there is a spacing between the origin and the 1st material (wall), an additional row must be added beforehand. Here, the dimension between the origin and the 1st material (wall) must be entered in cell **D**.

6. For additional walls, you must perform the following steps:

a) Use the **button** to insert an additional row.

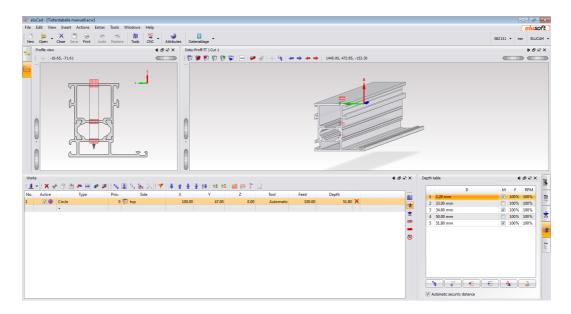
- Enter the dimension for the space between the end of the 1st and the beginning of the 2nd material in cell **D** .



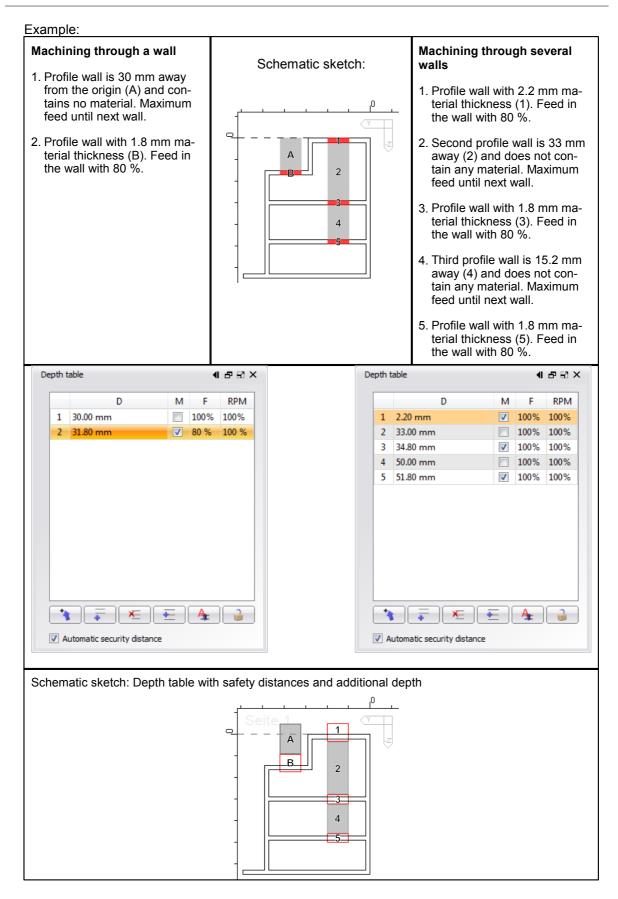
- Deactivate the selection field in cell M to mark the dimensional range as a space.
- Enter the feed rate in percent for the space in cell F.
- Enter the spindle speed in percent for the space in the RPM cell.

b) Use the **button** to insert an additional row.

- Enter the dimension of the material thickness (wall) in cell **D**.
- Activate the selection field in cell **M** to mark the existing material (wall) in the size range.
- Enter the feed rate in percent for the material (wall) in cell F.
- Enter the spindle speed in percent for the material (wall) in the **RPM** cell.
- c) For additional walls, repeat the input for the next lines as described in a) and b).
- 7. Once all walls and spaces have been entered, close the **DEPTH TABLE** by selecting a different tab.



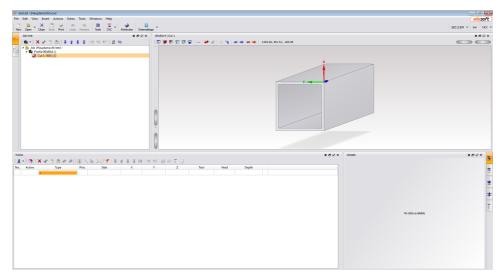






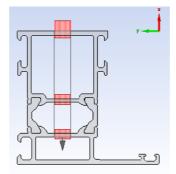
2.2.3.2 Creating a depth table automatically

This example shows the automatic creation of a depth table.



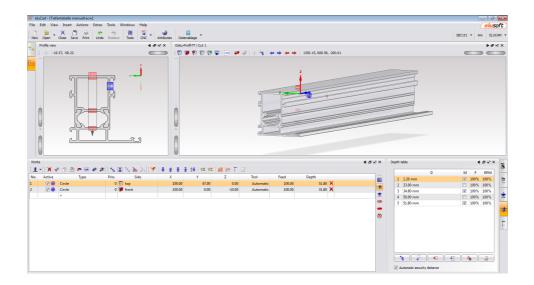
The following steps are necessary to create a **DEPTH TABLE** automatically:

- 1. Open the **PROGRAM EDITOR** and enter the desired machining task in the list.
- 2. Enter the depth of the machining task in the PLUNGE DEPTH input field on the DETAIL tab.
- 3. There are 2 options available for creating the **DEPTH TABLE** automatically:
 - 1) Use the 🖄 button to create the **DEPTH TABLE** automatically.
 - 2) Select depth using mouse:
 - Use the mouse pointer to select the **PROFILE CROSS-SECTION** field.
 - An arrow is displayed on the machining task automatically.
 - Select the tip of the arrow and drag it to the desired target point by holding down the left mouse button.
 - After the mouse button is released, the **DEPTH TABLE** is generated automatically up to the selected target point.



4. When creating the **DEPTH TABLE**, the software automatically calculates all intersection points of the machining task with the existing material (walls). The result is applied automatically in the **DEPTH TABLE** along with the defined safety distances. The graphic display of the **DEPTH TABLE** is shown in the **PROFILE CROSS-SECTION** field and in the **PROFILE VIEW** field.

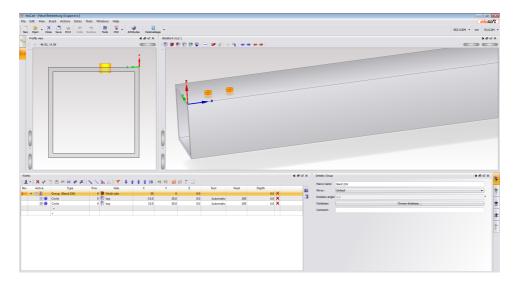






2.2.4 Groups / Macros

A **GROUP** describes several individual machining tasks which are grouped into a single machining task for the program. If a group can be used in several programs, the data are saved as a macro.



INFORMATION Groups and macros are displayed in a different colour in the PROFILE VIEW field so that the association of the individual machining tasks is apparent.

If several machining tasks are required together, these can be grouped together in a **GROUP**. Within the **GROUP**, the individual machining tasks all refer to a common point of reference. This point is also used for the positioning of the entire **GROUP**.

In the **GROUP**, the individual machining tasks are always listed as subpoints in the **MACHINING TASK LIST**.

In order to be able to use a **GROUP** in other programs, it must be saved in a database as a **MA-CRO**. The **MACRO** is inserted into the **MACHINING TASK LIST** in the same way as a machining task. The subpoints with the individual machining tasks are not listed.



2.2.4.1 Creating a new machining task as a group

This example shows the manual creation of a machining task as a group.

eluCad - [Hauptansicht.ecw]		- 4 🎫
File Edit View Insert Actions Extras Tools Windows Help		(elusoft)
New Open Close Save Print Undo Restore Tools CNC Attributes Datenab	200 T	582131EM - mm NCX -
	80x80x4 Cut 1	● & B X
	i 😰 🍺 💱 😰 🔚 🖊 🎺 🕂 🔫 🗰 🗰 🗰 1443.92, 491.51, -655.06	
Cost 1000(D)		
Works	€ 🗗 🖓 Detals:	▶@@× _
【▲• 13 X & 3 回 # # 国 5 3 3 Y 手 手 手 手 好 5		N
No. Active Type Pro. Sole X	V Z Tool Feed Dapth	96 95

Default machining task:

- Home position of the group; X = 50 mm; Y = 0 mm
- 2 circle pockets each with a 10 mm diameter
- Circle pocket position 1: top; X = -15 mm; Y = 30mm
- Circle pocket position 2: top; X = 15 mm; Y = 30mm
- Work feed rate 100%
- Depth 10 mm

To create the machining task as a machining chain, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the TYPE cell with a double click and select the type GROUP.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. In the SIDE cell, the MULTI-SIDED machining side is selected automatically.
- 5. Enter 50 mm for the X-home position of the group in the X cell.
- 6. The Y cell already contains 0 for the Y-home position of the group.
- 7. The Z cell already contains 0 for the Z-position.
- 8. Enter the data and values for the group in the input fields of the **DETAIL** tab.
 - Macro name: Enter the name of the machining task group (macro).
 - Mirror: Select the setting Normal.
- 9. Select the first blank subline in the list of profile machining tasks. **Info:** Sublines are displayed with an offset **+** symbol.
- 10. Open the selection window in the **TYPE** cell with a double click and select the type **CIRCLE**.
- 11. The machining task is activated automatically but can be deactivated at any time.
- 12. In the SIDE cell, the TOP machining side is selected automatically.
- 13. Enter -15 mm for the X-position in the X cell.



- 14. Enter 30 mm for the Y-position in the Y cell.
- 15. The Z cell already contains 0 for the Z-position.
- 16. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 17. The value of 100% is already entered in the FEED cell.
- 18. Enter the value of 10 mm in the **DEPTH** cell. Use the ^{the local} button to trigger the automatic wall detection, which is transferred to the depth table.

Use the **button** to manually create or change the depth table.

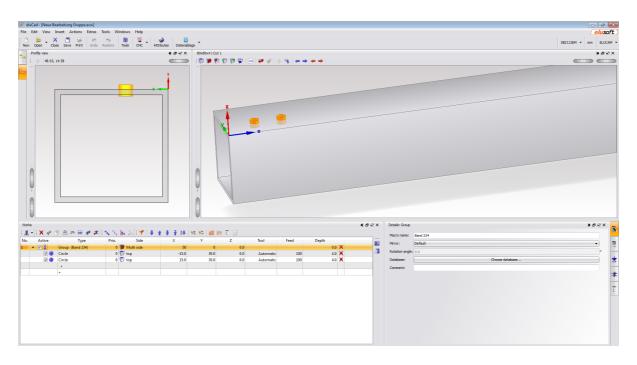
- 19. Enter the data and values for the machining task in the input fields of the DETAIL tab.
 - **Diameter:** Enter 10 mm for the diameter of the machining task.
 - Tool diameter: If needed, enter the desired tool diameter.
- 20. Select the second blank subline in the list of profile machining tasks.
- 21. Open the selection window in the TYPE cell with a double click and select the type CIRCLE.
- 22. The machining task is activated automatically but can be deactivated at any time.
- 23. In the SIDE cell, the TOP machining side is selected automatically.
- 24. Enter 15 mm for the X-position in the X cell.
- 25. Enter 30 mm for the Y-position in the Y cell.
- 26. The Z cell already contains 0 for the Z-position.
- 27. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 28. The value of 100% is already entered in the **FEED** cell.
- 29. Enter the value of 10 mm in the **DEPTH** cell. Use the button to trigger the automatic wall detection, which is transferred to the depth table.

Use the button to manually create or change the depth table.

- 30. Enter the data and values for the machining task in the input fields of the DETAIL tab.
 - Diameter: Enter 10 mm for the diameter of the machining task.
 - **Tool diameter:** If needed, enter the desired tool diameter.



31. Check all inputs in the profile view.





2.2.4.2 Saving a new machining task as a macro

This example shows the manual creation of a machining task which is to be saved as a macro.

@ eluCad - [Hauptansicht.ecw]		
File Edit View Insert Actions Extras Tools Windows Help		elusoft)
New Open Close Save Print Undo Restore Tools CNC Attributes Datematik	φ. [▼]	582131EM ▼ mm NCX ▼
	80x80x41Cut1	●⊕⊙×
Image: Note of the set of the s	1 💱 🎔 🕅 🕲 😨 🕞 😾 🌾 1 + 🦌 🗰 👄 1 1443.92, 491.51, -165.06	
Cat (60) ()		
Works	● 중 당 X Detais:	► a s × 💽
Image:		
No. Active Type Prio. Side X	Y Z Tool Feed Depth	
		-
		10 10 10 10 10 10 10 10 10 10 10 10 10 1
		*
		-
	No data avaliable	£

Default machining task:

- Home position of the group; X = 50 mm; Y = 0 mm
- 2 circle pockets each with a 10 mm diameter
- Circle pocket position 1: top; X = -15 mm; Y= 30 mm
- Circle pocket position 2: top; X = 15 mm; Y= 30 mm
- Work feed rate 100%
- Depth 10 mm

To save the machining task as a macro, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the TYPE cell with a double click and select the type GROUP.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. In the SIDE cell, the MULTI-SIDED machining side is selected automatically.
- 5. Enter 50 mm for the X-home position of the group in the X cell.
- 6. Enter 30 mm for the Y-home position of the group in the Y cell.
- 7. The Z cell already contains 0 for the Z-position.
- 8. Enter the data and values for the group in the input fields of the DETAIL tab.
 - Macro name: Enter the desired designation for the macro
 - Mirror: Select the setting Normal.
- 9. Select the first blank subline in the list of profile machining tasks. **Info:** Sublines are displayed with an offset **+** symbol.
- 10. Open the selection window in the **TYPE** cell with a double click and select the type **CIRCLE**.
- 11. The machining task is activated automatically but can be deactivated at any time.
- 12. In the SIDE cell, the TOP machining side is selected automatically.
- 13. Enter -15 mm for the X-position in the X cell.



- 14. Enter 10 mm for the Y-position in the Y cell.
- 15. The Z cell already contains 0 for the Z-position.
- 16. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 17. The value of 100% is already entered in the FEED cell.
- 18. Enter the value of 10 mm in the **DEPTH** cell. Use the ^{the local} button to trigger the automatic wall detection, which is transferred to the depth table.

Use the **button** to manually create or change the depth table.

- 19. Enter the data and values for the machining task in the input fields of the DETAIL tab.
 - **Diameter:** Enter 10 mm for the diameter of the machining task.
 - Tool diameter: If needed, enter the desired tool diameter.
- 20. Select the second blank subline in the list of profile machining tasks.
- 21. Open the selection window in the TYPE cell with a double click and select the type CIRCLE.
- 22. The machining task is activated automatically but can be deactivated at any time.
- 23. In the SIDE cell, the TOP machining side is selected automatically.
- 24. Enter 15 mm for the X-position in the X cell.
- 25. Enter 30 mm for the Y-position in the Y cell.
- 26. The Z cell already contains 0 for the Z-position.
- 27. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 28. The value of 100% is already entered in the **FEED** cell.
- 29. Enter the value of 10 mm in the **DEPTH** cell. Use the ^(*) button to trigger the automatic wall detection, which is transferred to the depth table.

Use the **button** to manually create or change the depth table.

- 30. Enter the data and values for the machining task in the input fields of the DETAIL tab.
 - Diameter: Enter 10 mm for the diameter of the machining task.
 - **Tool diameter:** If needed, enter the desired tool diameter.
- 31. Select the line with the group designation.
- 32. Use the **button** to save the group as a macro.
- 33. An information window which displays the saving of the macro will open automatically.
- 34. Press the **OK** button to confirm saving and to close the information window.



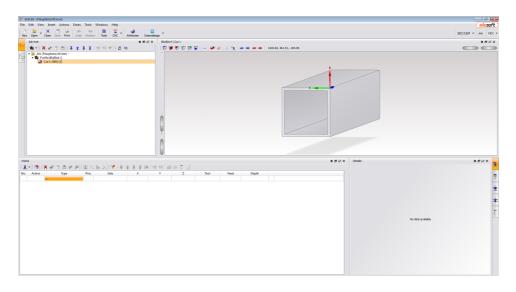
35. Check all inputs in the profile view.

eluCad - [Neue Bearbeitung Gruppe.ecw]			- 0 - 2
File Edit View Insert Actions Extras Tools Windows Help			elusoft]
New Open Close Save Print Undo Restore Tools CNC Attributes Datenal	490 *		SBZ131EM * mm ELUCAM *
Job tree d 🗗 🗟 🗙	80x80x4 Cut 1		► dP 62 ×
Image: X ≠ 3 ⊡ ↓ ↑ ↓ ↑ 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10 9 0 0 0 0 = = + + + + + + + + + + + + + +		
be blow Berchman Grupp -			
Works		K Details: Group	▶ 8 B × <mark>5</mark>
I≟·X≁⊙回≠⊛≠≠ %≤≥≥> ¥ ↓↓↓↓		Macro name: Band 234	
No. Active Type Prio. Side X	Y Z Tool Feed Depth 0	Mirror: Default	-
1 Sand 254 0 Multi side 50	0 00 00 00 00 00 00 00 00 00 00 00 00 0	Rotation angle: 0.0	•
		Database: Pfullendorfer_Macros.ncd	*
		Comment:	
			*
			₩ *
			E



2.2.4.3 Creating a new machining task with a macro

This example shows the manual creation of a machining task with a macro.



Default machining task:

- Home position of the macro; X = 50 mm; Y = 0 mm
- 2 circle pockets each with a 10 mm diameter
- Macro used: Docu-macro
- Work feed rate 100%
- Depth 10 mm

To create the machining task as a machining chain, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the TYPE cell with a double click and select the type MACRO.
- 3. By selecting the next cell, the **MACRO DATABASE** menu with the previously created macros opens automatically.
- 4. Select the desired macro in the **MACRO DATABASE** The machining task of the selected macro is displayed in the **PREVIEW** field.
- 5. Pressing the **OK** button applies the macro in the list of the machining and closes the **MACRO DATABASE** menu.
- 6. The machining task is activated automatically but can be deactivated at any time.
- 7. In the SIDE cell, the MULTI-SIDED machining side is selected automatically.
- 8. Enter 50 mm for the X-position of the macro in the X cell.
- 9. The Y cell already contains 0 mm for the Y-position.
- 10. The **Z** cell already contains 0 for the Z-position.
- 11. Enter the data and values for the group in the input fields of the **DETAIL** tab.

- Mirror: Select the setting Normal.



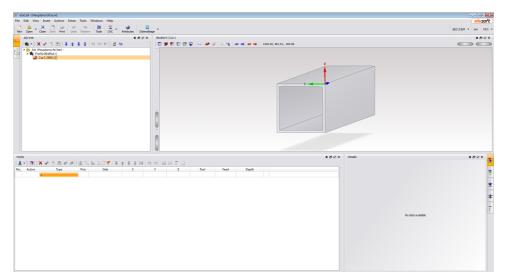
12. Check all inputs in the profile view.

eluCad - [Neue Bearbeitung Gruppe.ecw]			
File Edit View Insert Actions Extras Tools Windows Help			elusoft)
New Open Close Save Print Undo Restore Tools CNC Attributes Datenablage	•		S8Z131EM * mm ELUCAM *
Job tree d d H2 X	80x80x4 Cut 1		► de R ×
Image: X + 3 □ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	😰 🕊 🕲 🕲 😨 🖶 🛹 🌾 🕂 🐐 🖛 🗰 🖬		
Coll (200) Coll (200)			
Works 보 • X ✔ ③ @ == @ # # % % & 3, Y ↓ ↑ ↓ ↑ ↓		Details: Group	► B R X
	T Test Field Bank	Macro name: Band 234	
No. Active Type Pino. Side X 1 3 Band 234 0 9 Multi side 50	2 Iool Feed Depth 0.0 X	Mirror: Default	• 1
A Deno 254 0 Privilo suce 50	· · · · · · · · · · · · · · · · · · ·	Rotation angle: 0.0	•
		Database: Pfullendorfer_Macros.ncd	*
		Comment:	
			*
			*
			Per la



2.2.4.4 Creating a multi-sided group

This example shows the manual creation of a machining task as a machining multi-sided group.



Default machining task:

- Home position of the group; X = 50 mm; Y = 0 mm
- 3 drilled holes with a diameter of 10.5 mm each
- Drilled hole position 1: top; X = 0 mm; Y = PW/2 or Y/2; Z= 0 mm
- Drilled hole position 2: front; X = 0 mm; Y = 0 mm; Z= -PH/2 or -Z/2
- Drilled hole position 3: back; X = 0 mm; Y = PW or Y; Z= -PH/2 or -Z/2
- Depth 10 mm

To create the machining task as a machining chain, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the **TYPE** cell with a double click and select the type **GROUP**.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. In the SIDE cell, the MULTI-SIDED machining side is selected automatically.
- 5. Enter 50 mm for the X-home position of the group in the X cell.
- 6. The Y cell already contains 0 for the Y-home position of the group.
- 7. The Z cell already contains 0 for the Z-position.
- 8. Enter the data and values for the group in the input fields of the **DETAIL** tab.
 - Macro name: Enter the name of the machining task group (macro).
 - Mirror: Select the setting Normal.
- 9. Select the first blank subline in the list of profile machining tasks. **Info:** Sublines are displayed with an offset + symbol.
- 10. Open the selection window in the **TYPE** cell with a double click and select the type **DRILLING**.
- 11. The machining task is activated automatically but can be deactivated at any time.
- 12. In the SIDE cell, the TOP machining side is selected automatically.
- 13. The X cell already contains 0 mm for the X-position.
- 14. Enter PW/2 or Y/2 for the Y-position in the Y cell.
- 15. The **Z** cell already contains 0 mm for the Z-position.



- 16. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 17. Enter the value of 10 mm in the **DEPTH** cell. Use the ^{the local} button to trigger the automatic wall detection, which is transferred to the depth table.

Use the 🔳 button to manually create or change the depth table.

- 18. Enter the data and values for the machining task in the input fields of the **DETAIL** tab.
 - Diameter: Enter 10.5 mm for the diameter of the machining task.
- 19. Select the second blank subline in the list of profile machining tasks.
- 20. Open the selection window in the **TYPE** cell with a double click and select the type **DRILLING**.
- 21. The machining task is activated automatically but can be deactivated at any time.
- 22. Open the selection window in the **SIDE** cell with a double click and select **FRONT** as the machining side.
- 23. The X cell already contains 0 mm for the X-position.
- 24. The Y cell already contains 0 mm for the Y-position.
- 25. Enter -PH/2 or -Z/2 for the Z-position in the Z cell.
- 26. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 27. Enter the value of 10 mm in the **DEPTH** cell. Use the ^{the} button to trigger the automatic wall detection, which is transferred to the depth table.

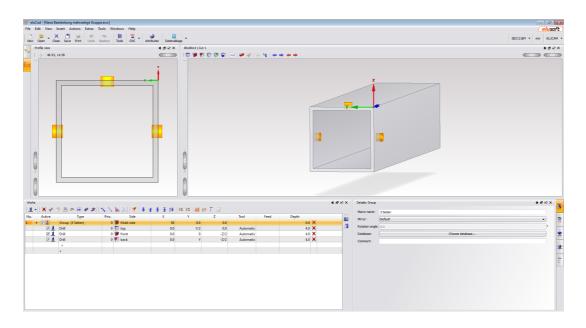
Use the *button to manually create or change the depth table.*

- 28. Enter the data and values for the machining task in the input fields of the DETAIL tab.
 - **Diameter:** Enter 10.5 mm for the diameter of the machining task.
 - **Tool diameter:** If needed, enter the desired tool diameter.
- 29. Select the third blank subline in the list of profile machining tasks.
- 30. Open the selection window in the TYPE cell with a double click and select the type DRILLING.
- 31. The machining task is activated automatically but can be deactivated at any time.
- 32. Open the selection window in the **SIDE** cell with a double click and select **BACK** as the machining side.
- 33. The X cell already contains 0 mm for the X-position.
- 34. Enter PW or Y for the Y-position in the Y cell.
- 35. Enter -PH/2 or -Z/2 for the Z-position in the Z cell.
- 36. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 37. Enter the value of 10 mm in the **DEPTH** cell. Use the ^{the local} button to trigger the automatic wall detection, which is transferred to the depth table.

Use the **button** to manually create or change the depth table.



- 38. Enter the data and values for the machining task in the input fields of the **DETAIL** tab.
 - **Diameter:** Enter 10.5 mm for the diameter of the machining task.
 - **Tool diameter:** If needed, enter the desired tool diameter.
- 39. Check all inputs in the profile view.





2.2.4.5 Converting a macro to a group

This example shows the conversion of a macro to a group.

🗑 duCad - [Hauptansidht.eow]	
File Edit View Insert Actions Extras Tools Windows Help	elusoft)
New Open Close Save Print Unio Rantore Tools CHC Attributes Datamablage	5821319H * mm NCX *
الم	► Ø R X
📙 📫 🕇 X 🖉 O 🗇 🖡 🛊 🛊 🗄 12 12 12 14 12 14 14 14 14 14 14 14 14 14 14 14 14 14	192, 491.51, -105.06
Works	4 <i>6</i> स X Detak: । ।
[重•]◎[X * ② 自非共同的为[Y] + 全主王好[はに]目日日日	
No. Active Type Prio. Side X Y Z Tool Feed Depth	2 * 7
	*
	*
	F
	No data available

Default machining task:

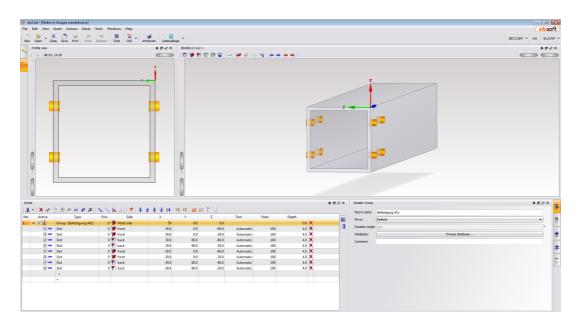
- Home position of the macro; X = 50 mm; Y = 0 mm
- Macro used: Attachment A01

Perform the following steps to convert a macro to a group:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the **TYPE** cell with a double click and select the type **MACRO**.
- 3. By selecting the next cell, the **MACRO DATABASE** menu with the previously created macros opens automatically.
- 4. Select the desired macro, *Attachment A01*, in the **MACRO DATABASE** The machining task of the selected macro is displayed in the **PREVIEW** field.
- 5. Pressing the **OK** button applies the macro in the list of the machining and closes the **MACRO DATABASE** menu.
- 6. The machining task is activated automatically but can be deactivated at any time.
- 7. In the SIDE cell, the MULTI-SIDED machining side is selected automatically.
- 8. Enter 50 mm for the X-position of the macro in the X cell.
- 9. The Y cell already contains 0 mm for the Y-position.
- 10. The **Z** cell already contains 0 for the Z-position.
- 11. Select the line with the group designation.
- 12. Pressing the 🎽 button saves the macro as a group.
- 13. An information window opens automatically.
- 14. Press the **YES** button to confirm saving and to close the information window.



15. Check all inputs in the profile view.





2.2.5 Manual changing of working orientation

In some programs it is not possible to execute the machining task with the profile in its normal working orientation. It is therefore necessary to rotate the profile to the appropriate position before beginning with machining. As the machining tasks are performed, the machine operator is prompted to rotate the profile. When creating a machining task, the programmer must define the position of the profile on the **PARAMETERS** tab under **CHANGE WORKING ORIENTATION**.

Parameters: Drill		4 ₽ 8 ×
Orientation change:	Þ	×
Condition:		
Machine condition:	STOP	•
Relative position:	310.00	🚖 mm

INFORMATION



The machine first processes all machining tasks which can be performed in the standard position. Then the message display will prompt you rotate the profile. After manually rotating the profile, the machining operation is continued by pressing the **START (F12)** button.

The following steps must be performed to specify a manual change of working orientation:

- 1. In the **MACHINING TASKS** table, select the desired machining task in the list of profile machining tasks.
- 2. Selecting the PARAMETERS tab opens additional settings for the machining task.
- Enter the desired working orientation directly in the CHANGE WORKING ORIENTATION field or select it using the selection buttons.
 Only a value of 0-7 may be entered or selected! The assignments of the working orientations can be found in the chapter Quick help for working orientations.
- 4. When the next input field is selected, the selected value is applied automatically.



2.2.6 Machining task conditions

Machining tasks can be adapted to various jobs using conditions. A machining operation is only performed when the corresponding condition is met.

Parameters: Slot		4 ₽ ₽ ×
Orientation change:	0	×.
Condition:	PL<=2100	
Machine condition:	STOP	 •
Relative position:	300.00	🚖 mm
Radius compensation:		

To create a condition, you must perform the following steps:

- 1. In the **MACHINING TASKS** table, select the desired machining task in the list of profile machining tasks.
- 2. Selecting the **PARAMETERS** tab opens additional settings for the machining task.
- 3. Enter the appropriate condition in the **CONDITION** input field.

INFORMATION It is possible to use variables that you have created yourself. These will be requested when the program is started.

Example:

If *PL*<=2100 is entered in the **CONDITION** input field, the profile will only be machined if the profile length is 2100 mm or less.



2.2.7 Machine conditions for machining tasks

Machining tasks can be adapted to various jobs by means of the machine conditions. A machining task is only performed if the corresponding machine condition is met. The machine conditions are fixed and can only be selected accordingly.

Parameters: Drill		╡₽В×
Orientation change:	D	* *
Condition:		
Machine condition:	STOP	•
Relative position:	310.00	🜩 mm

To create a machine condition, the following steps must be performed:

- 1. Open the **PROGRAM EDITOR** and select the desired machining operation in the list of profile machining operations.
- 2. Selecting the **PARAMETERS** tab opens additional settings for the machining task.
- 3. Select the respective condition in the MACHINE CONDITION input field.Example: var0>1200
- 4. A position can be entered in the **RELATIVE POSITION** input field to achieve an offset position.

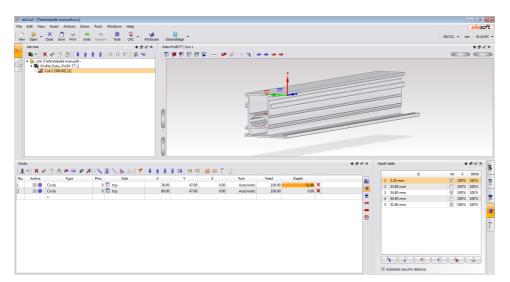
Example:

If *Stop is entered* in the **MACHINE CONDITION** input field, the machine moves to the home position and waits for a start command.

If a value is also entered in the **RELATIVE POSITION** input field, the machine first moves to the home position. The machine then moves to the X-position entered and waits for a start command.

2.2.8 Using copy and insert in profile machining tasks

This example demonstrates the copying and insertion of values in the individual cells.



To copy a cell, perform the following steps:

INFORMATION The copying and insertion of cells can only be done within the same column. Values from other columns cannot be inserted! When an entire row is selected, the copy function is applied to the entire row.

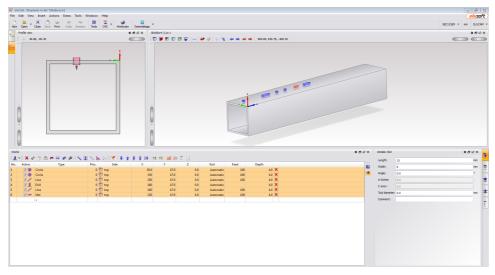
- 1. Mark the desired origin cell in the list of profile machining operations.
- 2. Press the ^b button to copy the value.
- 3. Mark the desired target cell in the list of profile machining tasks.
- 4. Press the 🗎 button to insert the value.
- 5. Check all the entries in the list of profile machining tasks.

Work	s																4 ₽ 8 ×
1 📕	• i 🗙 🚽	' 🐴 🗎	æ 🛃 # 🏞	. **	1º 12 3	💩 🥠 i 🍸	•	t 🗜	₹ ĝ₽	112 F	: 📁 🖂	Lux.	*				
No.	Active		Туре	Prio.		Side		Х		Y	Z		Tool	Feed	Depth		<u>.</u>
	Cut 1 (500	.00) [1]															
1	V 🔸	Circle		0	🗊 top			30.00)	47.00		0.00	Automatic	100.00	51.80	×	
2	🔽 📀	Circle		0	😰 top			80.00)	47.00		0.00	Automatic	100.00	51.80	×	*
		+															
																	8



2.2.9 Modifying several values in profile machining tasks

This example shows how to modify several values in the table.



To modify several values at once, perform the following steps:

The modification of several values can only be done within the same column. Values from other columns cannot be changed!

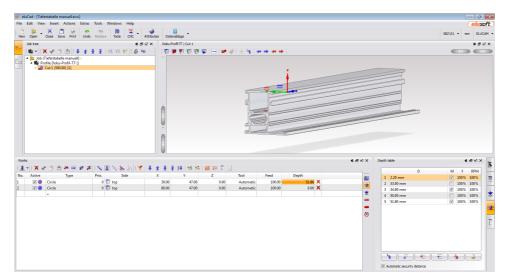
- 1. Mark the desired origin cell in the list of profile machining operations.
- 2. Use the A key on the keyboard and the left mouse button to mark further cells in the column.
- 3. Enter the desired value.
- 4. Press the key on the keyboard to apply the value in all marked cells.
- 5. Check all the entries in the list of profile machining tasks.

o. A	Active	Туре	Prio.	Side	Х	Y	Z	Tool	Feed	Depth		
	V	Slot	0	😰 top	220.000	47.000	0.000	Automatic	100.000	4.000	×	
	V	Line	0	😰 top	100.000	47.000	0.000	Automatic	100.000	4.000	X	
	V 🛢	Drill	0	😰 top	180.000	47.000	0.000	Automatic		4.000	X	
	V	Line	0	😰 top	250.000	47.000	0.000	Automatic	100.000	4.000	×	
	V 📀	Circle	0	😰 top	150.000	47.000	0.000	Automatic	100.000	4.000	×	
	V 📀	Circle	0	😰 top	30.000	47.000	0.000	Automatic	100.000	4.000	X	
		+										



2.2.10 Using drag and drop in profile machining tasks

This example demonstrates the copying and insertion of values in the individual cells using the drag and drop function.



To copy a cell, perform the following steps:

The copying and insertion of cells can only be done within the same column. Values from other columns cannot be inserted! When an entire row is selected, the copy function is applied to the entire row.

- 1. Mark the desired origin cell in the list of profile machining operations.
- 2. Select the cell with the left mouse button and hold the button down.
- 3. While the left mouse button is held down, select the desired target cell.
- 4. When the left mouse button is released, the value is inserted into the target cell.
- 5. Check all the entries in the list of profile machining tasks.

Works													4₽
3	- : 🗙 🚽	۴ 👌 ۹	🛲 💽 🕏	≢ 🔹	🔝 123 💩	23 17	+ + ±	🛉 🛃 🗮 🛱	i 📕 🗮 E				
lo.	Active		Туре	Prio.	Si	ide	х	Y	Z	Tool	Feed	Depth	
	Cut 1 (50	0.00) [1]											
		Circle			🕏 top		30.00	47.00	0.00	Automatic	100.00	51.80 🕽	
	🔽 📀	Circle		0	😰 top		80.00	47.00	0.00	Automatic	100.00	51.80	<
		+											



2.2.11 Performing the filter function in profile machining tasks

This example shows the filter function in the list of profile machining tasks.

🖉 eluCad - IFil	terfunktion in der Tabelle										
File Edit Vi	ew Insert Actions B	Extras Tools Windows Help									(elusoft
E 👌 🗭 .	, 🗙 🗂 😹	Lindo Restore Tools CNC	a								S8Z131EM + mm BLUCAM
New Open		Undo Restore Tools CNC		80x80x41Cu							
	n 5.1573.51										
1 + 1	5.15, -73.51		C		0000		+ 4 +	➡ ➡ ➡ 1233.95, 785.66, -243.41			
Works									4 Ø R X	T num	⊧øa× <mark>.</mark>
	+) = + = =	■ 5.5.5. ▼ + ± :	美華語 [編 編	1000					184.4	UTMB.	
No. Active	Type	Prio. Side	x	Y	z	Teol	Feed	Depth			
1 🛛 🖉	Drill	0 😱 top	50	52.0	0.0	Automatic		4.0 🗙			
2 🛛 🖛		0 🎾 front	220.0	-0.0	-30	Automatic	100	4.0 🗙			
	Slot	0 💓 front	250	-0.0	-30	Automatic	100	4.0 ×			2
	Drill Slot	0 😨 top 0 軍 front	150.0	52.0	0.0 -30	Automatic	100	4.0 × 4.0 ×			
	Slot	0 P back	280	-0.0	-30.0	Automatic	100	4.0 ×			3
	Drill	0 💬 top	350	52.0	-30.0	Automatic	100	4.0 ×			-
	Slot	0 🐑 back	250.0	80.0	-30.0	Automatic	100	4.0 ×		No data available	11 11 11
	Drill	0 🔁 top	450	52.0	0.0	Automatic	100	4.0 ×		NO DELL AVAILABLE	-
10 🛛 🖛	Slot	0 🐑 back	280.0	80.0	-30.0	Automatic	100	4.0 ×			
11 🛛 🖉	Drill	0 😨 top	250.0	52.0	0.0	Automatic		4.0 🗙			
	*	v 1> 100	20.0	320	0.0	AUGMADE		*** •			

Operation:

- Filter for all drilling operations from the top

The following steps are required to perform the filter function:

- 1. The **T** button displays the **FILTER** row.
- 2. To filter for the bore holes, enter a B in the input field of the TYPE filter cell.
- 3. Now, only the machining tasks of the **DRILLING** type are displayed in the list of profile machining tasks.
- 4. In the input field of the SIDE filter cell, enter an O to filter for the top side.
- 5. Now, only the machining tasks of the **DRILLING** type and the side **TOP** are displayed in the list of profile machining tasks.
- 6. Check all the entries in the list of profile machining tasks.

Works												4 8 8
<u></u>	- : 🗙 🛷	' 🐧 🗎 🗭 💽 # 🦊	: 🍫	123 🗞 🎠 🗺 🔍	1 1 1 1	24 72 75 8	🛛 🖽 🖬 🔛					
No.	Active	Туре	Prio.	Side	х	γ	Z	Tool	Feed	Depth		i
		d		t							×	
	V 😫	Drill	0) 😰 top	150.0	52.0	0.0	Automatic			×	
	V 💐) 🗊 top	450	52.0	0.0	Automatic			X	
1	V 💐	Drill	0) 😰 top	250.0	52.0	0.0	Automatic		4.0	X	



2.2.12 Performing automatic priority assignment in profile machining tasks

This example shows the automatic assignment of priorities in the list of profile machining tasks.

	omatische Priorität.ecw]												- 9 3
	v Insert Actions Extras Too												elusofi
New Open	X 🖱 😸 😁 -	Tools CNC Attributes	Deterablece									982131EH ¥ mm	n BLUCAM
Job tree			4 2 R X 80.8	0x4 Out 1									1.0 R)
- 1 % - 11	X + 8 🖻 🖡 🛊 🚦	1 1 1 1 1 1 B 10	10		😨 🖃 🛢	#1+ % 1	****	1443.39, 512.03, -125.65				(CCC - 110)	
	orie 934694 () Curt 1 (999) []		Û						100 (100)				
			19										
		♥ 单 至 至 择 12 1							ۯ#X	Detais: cut Active:	V	•	erx .
No. Active	Type	Prio. Side	x	Y	z	Teol	Feed	Depth	4 <i>8</i> ≈ × -		V 1	•	
No. Active	Type Circle	Prio. Side 0 😨 top	X 50	Y 52.0	0.0	Automatic	100	4.0 🗙	4 <i>6</i> 4X	Active: Out number:	1	Þ	
1 2 3 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Type Circle Slot	Prio. Side 0 😰 top 0 🍞 front	X 50 220.0	Y 52.0 -0.0	0.0 -30	Automatic Automatic	100 100	4.0 × 4.0 ×	4 <i>6</i> 3X	Active: Cut number: Station:	1	Þ	
1 - X -	Type Circle Slot Slot	Prio. Side 0 🔁 top 0 📁 front 0 🍞 front	X 50 220.0 250	Y 52.0 -0.0 -0.0	0.0 -30 -30	Automatic Automatic Automatic	100	4.0 × 4.0 × 4.0 ×	4 <i>0</i> 3X	Active: Cut number: Station: Copies:	1 0 1.0	•	
1 × X 1 No. Active 2 2 • • • • • • • • • • • • • • • • • •	Type Circle Slot Slot Drill	Prio. Side 0 (1) top 0 (2) formt 0 (2) formt 0 (1) top	X 50 220.0 250 150.0	Y 52.0 -0.0 -0.0 52.0	0.0 05- 05- 0.0	Automatic Automatic Automatic Automatic	100 100 100	4.0 × 4.0 × 4.0 ×	•ø#x	Active: Cut number: Station:	1	В	• 1
	Type Circle Slot Slot Drill Slot	Price. Side 0 10 top 0 10 ficent 0 10 top 0 10 top 0 10 top 0 10 top	X 50 220.0 250 150.0 280	Y 52.0 -0.0 -0.0 52.0 -0.0	0.0 -30 -30 0.0 -30	Automatic Automatic Automatic Automatic Automatic	100 100 100	4.0 × 4.0 × 4.0 × 4.0 × 4.0 ×	4 <i>8</i> 4X	Active: Cut number: Station: Copies:	1 0 1.0	ŀ	8 8 8
	Type Circle Slot Slot Slot Slot Slot	Price. Side 0 10 top 0 10 ficent	X 50 220.0 250 150.0 280 220.0	Y 52.0 -0.0 52.0 -0.0 80.0	0.0 -30 -30 -30 -30 -30.0	Automatic Automatic Automatic Automatic Automatic Automatic	100 100 100 100 100	4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 ×	482	Active: Cut number: Station: Copies: Cut length:	1 0 1.0 500	•	8 8 8
	Type Slot Slot Drill Slot Slot Slot Circle	Price. Side 0 10 top 0 10 ficent 0 10 top 0 10 top 0 10 top 0 10 top	X 50 220.0 250 150.0 280	Y 52.0 -0.0 -0.0 52.0 -0.0	0.0 -30 -30 0.0 -30	Automatic Automatic Automatic Automatic Automatic	100 100 100	4.0 × 4.0 × 4.0 × 4.0 × 4.0 ×	4#XX	Active: Cut number: Station: Copies: Cut length: Siew left: Indine left:	1 0 1.0 500 90.0 90.0	•	8 8 8
■ • × × • • × • • • × • • • • × • • • •	Type Circle Slot Slot Slot Slot Slot Slot Slot Slot	Price. Side 0 10 top 0 16 frent 0 17 top 0 17 top 0 16 frent 0 17 top 0 17 back 0 17 top	X 50 220.0 250 150.0 280 220.0 350	Y 52.0 -0.0 52.0 -0.0 80.0 52.0	0.0 06- 06- 06- 06- 0.06- 0.0	Automatic Automatic Automatic Automatic Automatic Automatic Automatic	100 100 100 100 100 100	4.0 × 4.0 × 4.0 × 4.0 × 4.0 ×		Active: Cut number: Stations Copies: Cut lengths Siew left: Indine left: Siew right:	1 0 1.0 500 90.0 90.0 90.0 90.0	•	
↓ × × s No. Active ↓ ∅ ∅ 2 ∅ ∅ ∅ ∅ 3 ∅ ∅ ∅ ∅ 5 ∅ ∅ ∅ ∅ 5 ∅ ∅ ∅ ∅ 0 ∅ ↓ ↓ ↓	Type Circle Slot Slot Slot Slot Circle Slot Drill Slot Slot	Price. Side 0 10 form 0 10 form	X 50 220.0 250 250 280 280 250.0 250.0 250.0 250.0 280.0	Y 52.0 -0.0 -0.0 52.0 -0.0 80.0 52.0 80.0	0.0 06- 00- 00- 006- 0.0 0.0 0.0 0.0 0.0 0.0	Automatic Automatic Automatic Automatic Automatic Automatic Automatic Automatic	100 100 100 100 100 100	4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 ×	48*X	Active: Cut number: Station: Copies: Cut length: Siew left: Indine left: Siew right: Indine right:	1 0 1.0 500 90.0 90.0	•	8 8 8
■ • × × • • × • • • × • • • • × • • • •	Type Circle Slot Slot Slot Slot Circle Slot Drill Slot Slot	Princ. Side 0 10 top 0 10 front 0 10 back 0 10 back 0 10 top	X 50 220.0 250 150.0 280 220.0 350 250.0 450	Y 52.0 -0.0 -0.0 52.0 -0.0 80.0 52.0 80.0 52.0	0.0 06- 06- 06- 06- 0.0 0.0 0.0 0.0 0.0	Automatic Automatic Automatic Automatic Automatic Automatic Automatic Automatic	100 100 100 100 100 100 100	4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 ×		Active: Cut number: Stations Copies: Cut lengths Siew left: Indine left: Siew right:	1 0 1.0 500 90.0 90.0 90.0 90.0	Þ	
Image: Second	Type Circle Slot Slot Slot Slot Circle Slot Drill Slot Slot	Price. Side 0 10 form 0 10 form	X 50 220.0 250 250 280 280 250.0 250.0 250.0 250.0 280.0	Y 52.0 -0.0 52.0 -0.0 80.0 52.0 80.0 52.0 80.0 52.0 80.0	0.0 -30 -30 0.0 -30 -300 -300 -300 -300	Automatic Automatic Automatic Automatic Automatic Automatic Automatic Automatic Automatic Automatic	100 100 100 100 100 100 100	4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 ×	484X	Active: Cut number: Station: Copies: Cut length: Siew left: Indine left: Siew right: Indine right:	1 0 1.0 500 90.0 90.0 90.0 90.0	•	
Image: Second	Type Civile Slot Slot Slot Slot Civile Slot Civile Slot Drill Slot Drill	Price. Side 0 10 form 0 10 form	X 50 220.0 250 250 280 280 250.0 250.0 250.0 250.0 280.0	Y 52.0 -0.0 52.0 -0.0 80.0 52.0 80.0 52.0 80.0 52.0 80.0	0.0 -30 -30 0.0 -30 -300 -300 -300 -300	Automatic Automatic Automatic Automatic Automatic Automatic Automatic Automatic Automatic Automatic	100 100 100 100 100 100 100	4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 ×		Active: Out number: Stations Copies Out lengths Siew right: Indine rights Commission:	1 0 1.0 500 90.0 90.0 90.0 90.0		
Image: Second	Type Civile Slot Slot Slot Slot Civile Slot Civile Slot Drill Slot Drill	Price. Side 0 10 form 0 10 form	X 50 220.0 250 250 280 280 250.0 250.0 250.0 250.0 280.0	Y 52.0 -0.0 52.0 -0.0 80.0 52.0 80.0 52.0 80.0 52.0 80.0	0.0 -30 -30 0.0 -30 -300 -300 -300 -300	Automatic Automatic Automatic Automatic Automatic Automatic Automatic Automatic Automatic Automatic	100 100 100 100 100 100 100	4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 ×		Active: Out number: Station: Copies: Out length: Siew left: Indine left: Siew right: Indine right: Commission: Clamping oriental Offset X Y 2	1 0 1.0 500 90.0 90.0 90.0 90.0 90.0 90.0 90.		
Image: Second	Type Civile Slot Slot Slot Slot Civile Slot Civile Slot Drill Slot Drill	Price. Side 0 10 form 0 10 form	X 50 220.0 250 250 280 280 250.0 250.0 250.0 250.0 280.0	Y 52.0 -0.0 52.0 -0.0 80.0 52.0 80.0 52.0 80.0 52.0 80.0	0.0 -30 -30 0.0 -30 -300 -300 -300 -300	Automatic Automatic Automatic Automatic Automatic Automatic Automatic Automatic Automatic Automatic	100 100 100 100 100 100 100	4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 ×		Active: Out number: Stations Copiess Out lengths Siew right: Indine left: Siew right: Indine right: Commission: Clamping orientat	1 0 1.0 500 90.0 90.0 90.0 90.0 90.0 90.0 90.		
Image: Second	Type Civile Slot Slot Slot Slot Civile Slot Civile Slot Drill Slot Drill	Price. Side 0 10 form 0 10 form	X 50 220.0 250 250 280 280 250.0 250.0 250.0 250.0 280.0	Y 52.0 -0.0 52.0 -0.0 80.0 52.0 80.0 52.0 80.0 52.0 80.0	0.0 -30 -30 0.0 -30 -300 -300 -300 -300	Automatic Automatic Automatic Automatic Automatic Automatic Automatic Automatic Automatic Automatic	100 100 100 100 100 100 100	4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 ×		Active: Out number: Station: Copies: Out length: Siew left: Indine left: Siew right: Indine right: Commission: Clamping oriental Offset X Y 2	1 0 1.0 500 90.0 90.0 90.0 90.0 90.0 90.0 90.		
Image: Second	Type Civile Slot Slot Slot Slot Civile Slot Civile Slot Drill Slot Drill	Price. Side 0 10 form 0 10 form	X 50 220.0 250 250 280 280 250.0 250.0 250.0 250.0 280.0	Y 52.0 -0.0 52.0 -0.0 80.0 52.0 80.0 52.0 80.0 52.0 80.0	0.0 -30 -30 0.0 -30 -300 -300 -300 -300	Automatic Automatic Automatic Automatic Automatic Automatic Automatic Automatic Automatic Automatic	100 100 100 100 100 100 100	4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 × 4.0 ×	484X	Active: Out number: Station: Copies: Out length: Siew left: Indine left: Siew right: Indine right: Commission: Clamping oriental Offset X Y 2	1 0 1.0 500 90.0 90.0 90.0 90.0 90.0 90.0 90.		

The following steps are required to perform the automatic assignment of priorities:

- 1. Use the ¹/₃ button to have incremental priorities assigned to the individual machining tasks automatically.
- 2. Check all inputs in the profile view.

	Depth	Feed	Tool	Z	Y	x	Side	Type Prio.		Active	No.
4.0 🗙	100		Automatic	0.0	52.0	50	top		Circle		
4.0 ×		100	Automatic	-30	-0.0	220.0	front			V -	
4.0 🗙	100	100	Automatic	-30	-0.0	250	📁 front			V	
4.0 🗙			Automatic	0.0	52.0	150.0	🗊 top		Drill	V 💐	
4.0 🗙	100	100	Automatic	-30	-0.0	280	🏓 front	5		V	
4.0 🗙	100	100	Automatic	-30.0	80.0	220.0	🔊 back	6	Slot	V	
4.0 🗙	100	100	Automatic	0.0	52.0	350	🗗 top	7	Circle	V 📀	
4.0 🗙	100	100	Automatic	-30.0	80.0	250.0	🔊 back	8	Slot	7	
4.0 🗙			Automatic	0.0	52.0	450	🗗 top	9	Drill	7	
4.0 🗙	100	100	Automatic	-30.0	80.0	280.0	🔊 back	10	Slot	7	
4.0 🗙			Automatic	0.0	52.0	250.0	🖸 top	11	Dell	V 💐	



2.2.13 Free forms / Milling contours

Complex milling paths can be created in the **FREE FORM** menu. A free form, or also a milling contour, is entered in a program as a normal machining task. It is possible to enter them with basic CNC knowledge.

The free form always begins at the insertion point, which is defined in the machining task list. The milling path is created in the free form as a track with individual elements. The selection of the direction defines the orientation of the milling cutter with respect to the programed milling path.

Centre	Left = Left-sided correction (G41)	Right = Right-sided correcti- on (G42)	
The tool machines the specified contour.	The tool performs machining to left of the specified contour.	Tool performs machining to the right of the specified contour.	
Y 40 41 35 29 21 X 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	X 40 42 30 7 7 7 7 14 21 20 35 42 42 42 42 42 42 42 42 42 42	7 7 7 7 7 7 7 7 7 7 7 7 7 7	

The feed rate can be defined in the individual free form elements in the FEED RATE cell.

In order to be able to insert a free form into the machining task list, it must either be created new or selected from a free form database.

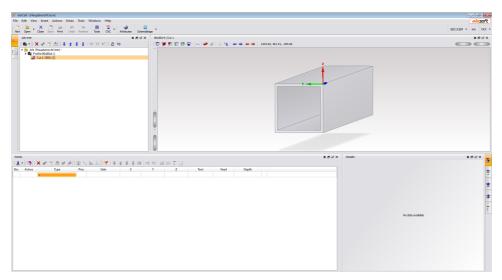
The selection is made by means of the two machining task types:

- FREE FORM Creating new free forms
- · FREE FORM IMPORT Opening previously created free forms



2.2.13.1 Creating a free form without polar coordinates

This example shows the creation of a new free form without polar coordinates.



Default machining task:

- Home position of the free form: top; X = 50 mm; Y = 20 mm
- Free form with a triangular shape using a 6 mm tool
- 1st free form position X = 30 mm; Y = 30 mm
- 2nd free form position X = 60 mm
- 3rd free form position X = 0 mm; Y = 0 mm
- Work feed rate 100%
- Direction: centre
- Depth 10 mm

To create the free form without polar coordinates, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the **TYPE** cell with a double click and select the type **FREE FORM**.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. In the SIDE cell, the TOP machining side is selected automatically.
- 5. Enter 50 mm for the X-home position of the free form in the X cell.
- 6. Enter 20 mm for the Y-home position of the free form in the Y cell.
- 7. The Z cell already contains 0 for the Z-position.
- 8. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 9. The value of 100% is already entered in the FEED cell.
- 10. Enter the value of 10 mm in the **DEPTH** cell. Use the ^{the local} button to trigger the automatic wall detection, which is transferred to the depth table.

Use the **button** to manually create or change the depth table.

- 11. Pressing the 💙 button closes the EDIT FREE FORM menu.
- 12. Select the **INPUT** menu in the menu bar and deactivate the **POLAR** menu item. **Info:**When **v** is displayed, the input with polar coordinates is activated.



- 13. Pressing the **NEW** button opens a new free form.
- 14. In the **POSITION X** input field, enter the value of 30 mm for the 1st machining task.
- 15. In the **POSITION Y** input field, enter the value of 30 mm for the 1st machining task.
- 16. In the ARC selection field, select the option NONE.
- 17. The value of 100% is already entered in the **FEED RATE** input field.
- 18. Pressing the **NEW** button opens a new free form element.
- 19. In the **POSITION X** input field, enter the value of 60 mm for the 2nd machining task.
- 20. In the **POSITION Y** input field, enter the value of 0 mm for the 2nd machining task.
- 21. In the ARC selection field, select the option NONE.
- 22. The value of 100% is already entered in the FEED RATE input field.
- 23. Pressing the **NEW** button opens a new free form element.
- 24. In the **POSITION X** input field, enter the value of 0 mm for the 3rd machining task.
- 25. In the **POSITION Y** input field, enter the value of 0 mm for the 3rd machining task.
- 26. In the ARC selection field, select the option NONE.
- 27. The value of 100% is already entered in the FEED RATE input field.
- 28. When the ACCEPT key is pressed, the new free form is added to the machining task list.
- 29. Enter the data and values for the group in the input fields of the DETAIL tab.
 - **Diameter:** Enter 6 mm for the diameter of the machining task.
 - Direction: Select **CENTRE** for the machining track of the tool.

30. Check all inputs in the profile view.

eluCad - [Freiform ohne Polarkoordinaten.ecw]			- 1 🖬 🔜
File Edit View Insert Actions Extras Tools Windows Help			elusoft)
New Open Close Save Print Undo Restore Tools CNC Attributes Datema	94 [*]	582131EM * mm	ELUCAM *
Profile view 4 & 2 X	85x80x4 [Cut 1		▶ # R ×
· + 48.93, 14.58	[♥ ♥ ♥ ♥ ♥ ■ = ≠ ♥ + ≒ + → + →		
Works	● @ R X Details: Free Miling	•	ਭਾਰ× 🥫
II·X ≠ 3 @ ≠ @ ≠ ≠ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	EL FI Deneters 6		📫
No. Active Type Prio. Side X 1 ☑ № Free Milling 0 🗊 top 50.0	Y Z Tool Feed Depth 20.0 0.0 Automatic 100 4.0 X 0.0		
+	200 00 Additionation 100 100 100 100 200 0.0		
	directions center		• 🛨
	Connent:		
			*
			tut.
			-



2.2.13.1.1 Example of a free form circle

This example shows the manual creation of a free form circle.



The example is shown in simplified form. It shows the values for the individual free form entry steps. The exact procedure for creating a free form is explained in the chapter **CREATING A FREE FORM WITHOUT POLAR COORDINATES**

Operation:

- Circle with diameter 20 mm
- Without tool correction
- Starting point is at centre

To create the free form circle, perform the following steps:

1. Free form element: Approach the free form

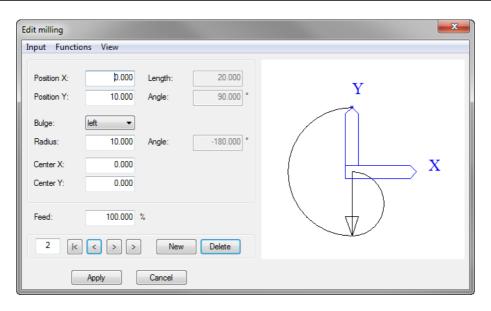
Position X	Position Y	Arc	Radius	Centre point X	Centre point Y
0	-10	Left	5	0	-5

Edit milling					23
Input Functio	ons View				
Position X: Position Y:	0.000	Length: Angle:	10.000 270.000 °	Y	
Bulge: Radius: Center X:	left ▼ 5.000 0.000	Angle:	-180.000 •		
Center Y:	-5.000				
Feed:	100.000	%		\pm	
1 K	< > >	New	Delete	¥	
	Apply	Cancel			



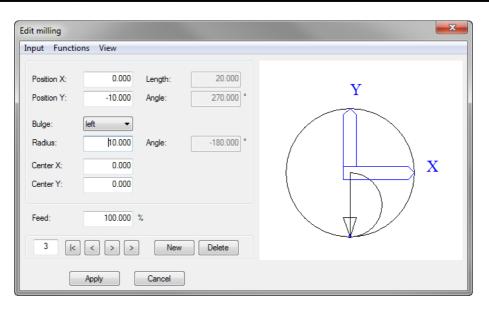
2. Free form element: First semicircle

Position X	Position Y	Arc	Radius	Centre point X	Centre point Y
0	10	Left	10	0	0



3. Free form element: Second semicircle

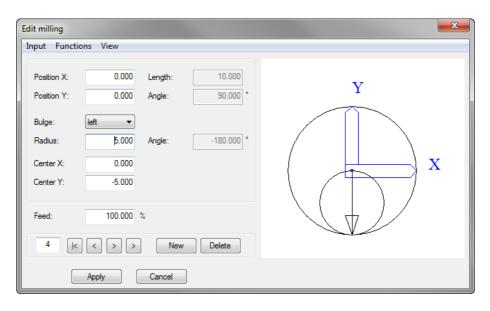
Position X	Position Y	Arc	Radius	Centre point X	Centre point Y
0	-10	Left	10	0	0



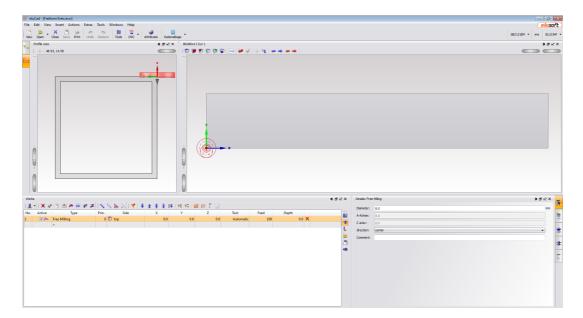


4. Free form element: Tracing the free form

Position X	Position Y	Arc	Radius	Centre point X	Centre point Y
0	0	Left	5	0	-5



Entire free form in the **PROGRAM EDITOR**:





2.2.13.1.2 Example of a free form rectangle

This example shows the manual creation of a free form rectangle.



The example is shown in simplified form. It shows the values for the individual free form entry steps. The exact procedure for creating a free form is explained in the chapter **CREATING A FREE FORM WITHOUT POLAR COORDINATES**

Operation:

- Rectangle with a length of 80 mm and a width of 20 mm
- Without tool correction
- Starting point is at centre

To create the free form rectangle, perform the following steps:

1. Free form element: Approach the free form

Position X	Position X	Arc	Radius	Centre point X	Centre point X
0	-10	Left	5	0	-5

Edit milling				
Input Functio	ons View			
Position X: Position Y:	0.000	Length: Angle:	10.000 270.000 °	Y
Bulge: Radius: Center X: Center Y:	left ▼ \$.000 -0.000 -5.000	Angle:	-180.000 •	
Feed:	100.000	%	Delete	
	Apply	Cancel]	



2. Free form element: First line

Position X	Position X	Arc	Radius	Centre point X	Centre point X
-40	-10	None	-	-	-

Edit milling						×
Input Function	ons View					
Position X:	-40.000	Length:	40.000			
Position Y:	-10.000	Angle:	180.000 °			
Bulge:	none 🔻				Y	
Radius:	0.000	Angle:	• 0.000		Û	
Center X:	0.000					⇒ x
Center Y:	0.000			0	\square	
Feed:	100.000 %					
2 🛛	< > >	New	Delete			
	Apply	Cancel]			

3. Free form element: Second line

Position X	Position X	Arc	Radius	Centre point X	Centre point X
-40	10	None	-	-	-

Edit milling				×
Input Function Position X: Position Y: Bulge: Radius: Center X: Center Y:			ľ	Y X
Feed:	100.000 %			
3 K		New Delete		



4. Free form element: Third line

Position X	Position X	Arc	Radius	Centre point X	Centre point X
40	10	None	-	-	-

Edit milling				
Input Functio	ons View			
Position X: Position Y:	40.000	Length: Angle:	80.000 0.000 •	
Bulge: Radius: Center X: Center Y:	none ▼ 0.000 0.000 0.000 0.000	Angle:	0.000 •	x x
Feed:	100.000	%		
4 🛌	Apply	Cancel	Delete	

5. Free form element: Fourth line

Position X	Position X	Arc	Radius	Centre point X	Centre point X
40	-10	None	-	-	-

Edit milling					×
Input Functio	ons View				
Position X: Position Y:	40.000	Length: Angle:	20.000 270.000 °		
Bulge: Radius: Center X: Center Y:	none ▼ 0.000 0.000 0.000 0.000	Angle:	0.000 •	x x	a
Feed:	100.000	%			
5 k		New	/ Delete		
	Apply	Cancel			



6. Free form element: Fifth line

Position X	Position X	Arc	Radius	Centre point X	Centre point X
0	-10	None	-	-	-

Edit milling					٢
Input Functio	ons View				
Position X: Position Y:	0.000	Length: Angle:	40.000 180.000 °		
Bulge: Radius: Center X: Center Y:	none ▼ 0.000 0.000 0.000 0.000	Angle:	0.000 •	x x	
Feed:	100.000	%			
6 K	< > >	New	Delete		
	Apply	Cancel			

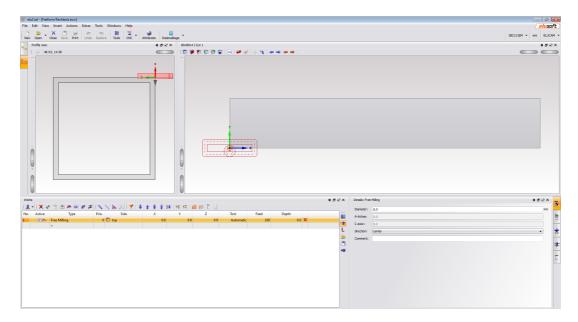
7. Free form element: Tracing the free form

Position X	Position X	Arc	Radius	Centre point X	Centre point X
0	0	Left	5	0	0

Edit milling Input Functio	ons View			×
Position X: Position Y:	0.000	Length: Angle:	10.000 90.000 *	
Bulge: Radius: Center X: Center Y:	left ▼ 5.000 0.000 0.000 0.000	Angle:	-180.000 •	x x
Feed:	100.000			
7 🔽	Apply	Cancel		



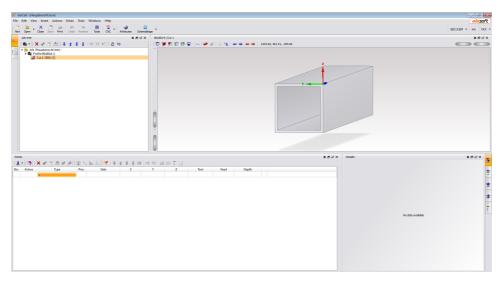
8. Entire free form in the **PROGRAM EDITOR**:





2.2.13.2 Creating a free form with polar coordinates

This example shows the creation of a new free form using polar coordinates.



Default machining task:

- Home position of the free form: top; X = 50 mm; Y = 20 mm
- Free form with a U shape, using a 6 mm tool
- 1st free form position X = 25 mm
- 2nd free form position Y = 15 mm
- 3rd free form position X = -25 mm
- Work feed rate 100%
- Direction: centre
- Depth 10 mm

To create the free form with polar coordinates, perform the following steps:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the **TYPE** cell with a double click and select the type **FREE FORM**.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. In the SIDE cell, the TOP machining side is selected automatically.
- 5. Enter 50 mm for the X-home position of the free form in the X cell.
- 6. Enter 20 mm for the Y-home position of the free form in the Y cell.
- 7. The Z cell already contains 0 for the Z-position.
- 8. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 9. The value of 100% is already entered in the FEED cell.
- 10. Enter the value of 10 mm in the **DEPTH** cell. Use the ^{the local} button to trigger the automatic wall detection, which is transferred to the depth table.

Use the **button** to manually create or change the depth table.

- 11. Pressing the 💙 button closes the EDIT FREE FORM menu.
- 12. Select the **INPUT** menu in the menu bar and activate the **POLAR** menu item.

Info:When 🗹 is displayed, the input with polar coordinates is activated.



- 13. Pressing the **NEW** button opens a new free form.
- 14. In the LENGTH input field, enter the value of 25 mm for the 1st machining task.
- 15. In the ARC selection field, select the option NONE.
- 16. The value of 100% is already entered in the **FEED RATE** input field.
- 17. Pressing the **NEW** button opens a new free form element.
- 18. In the LENGTH input field, enter the value of 15 mm for the 2nd machining task.
- 19. In the ANGLE input field, enter the value of 90° for the 2nd machining task.
- 20. In the ARC selection field, select the option RIGHT.
- 21. In the ANGLE input field, enter the arc value of 180° for the 2nd machining task.
- 22. The value of 100% is already entered in the FEED RATE input field.
- 23. Pressing the **NEW** button opens a new free form element.
- 24. In the LENGTH input field, enter the value of -25 mm for the 3rd machining task.
- 25. In the ANGLE input field, enter the arc value of 180° for the 3rd machining task.
- 26. In the ARC selection field, select the option NONE.
- 27. The value of 100% is already entered in the FEED RATE input field.
- 28. When the ACCEPT key is pressed, the new free form is added to the machining task list.
- 29. Enter the data and values for the group in the input fields of the DETAIL tab.
 - **Diameter:** Enter 6 mm for the diameter of the machining task.
 - **Direction:** Select **CENTRE** for the machining track of the tool.

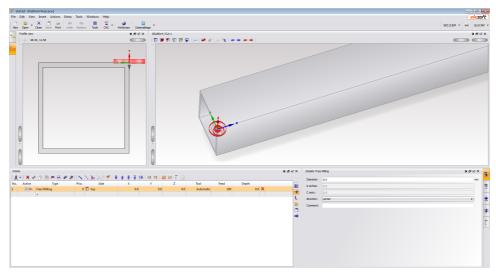
30. Check all inputs in the profile view.

🖇 doCd - [freform nt Polytocordnetes.co]						
File Edit View Insert Actions Extras Tools Windows Help			elusoft]			
New Open Close Save Print Undo Restore Tools CNC Attributes Datenab	e -	582131EM * mm	ELUCAM *			
	85x85x4 [Cit 1		▶ @ £ ×			
· + 48.93, 14.58						
<u>±</u> ·X ≠ 0 @ ≠ @ ≠ ≠ 1 ≤ 5 6 5 Y ↓ 1 ± ± ± #	● 5 RT X Detaks Free Miling		R X 💦			
No. Active Type Prio. Side X	V 7 Test First Dank					
1 Free Milling 0 🕞 top 50.0	20.0 0.0 Automatic 100 4 🗙					
•	C 09951 0.0		- +			
	Convert		• •			
	Comment:		*			
	•					



2.2.13.3 Importing a free form

This example shows the import of a previously existing free form.



Default machining task:

- Import an existing free form circle
- Tool with a diameter of 6 mm
- Position front; X = 30 mm; Z = -20 mm
- Work feed rate 100%
- Depth 10 mm

The following steps are required to import an existing free form:

- 1. In the **MACHINING TASKS** table, select the first blank line in the list of profile machining tasks. If a line containing a machining operation is selected, it can be overwritten!
- 2. Open the selection window in the **TYPE** cell with a double click and select the type **FREE FORM IMPORT**.
- 3. The machining task is activated automatically but can be deactivated at any time.
- 4. By selecting the next cell, the SELECT CONTOUR menu automatically opens.
- 5. The list of existing free forms is displayed.
- Select the desired free form file from the list.
 Info:Use the FILTER FUNCTION to reduce the list of files to the filter selection.
- 7. Use the OK button to add the selected free form file to the machining task list.
- 8. Open the selection window in the **SIDE** cell with a double click and select **FRONT** as the machining side.
- 9. Enter 30 mm for the X-home position of the free form in the X cell.
- 10. The Y cell already contains 0 mm for the Y-position.
- 11. Enter -20 mm for the Z-home position of the free form in the Z cell.
- 12. The tool is defined automatically by default in the **TOOL** cell. A tool can be defined in the **TOOL SELECTION** menu by pressing the **AUTOMATIC** button.
- 13. Enter the value of 80% in the FEED RATE cell.
- 14. Enter the value of 10 mm in the **DEPTH** cell. Use the button to trigger the automatic wall detection, which is transferred to the depth table.

Use the **button** to manually create or change the depth table.



- 15. Enter the data and values for the group in the input fields of the **DETAIL** tab.
 - **Diameter:** Enter 6 mm for the diameter of the machining task.
 - **Direction:** Select **CENTRE** for the machining track of the tool.
- 16. Check all inputs in the profile view.

8 duCad - [Freiform importieren.ecw]		
File Edit View Insert Actions Extras Tools Windows Help	eluso	
New Open Close Save Print Undo Restore Tools CNC Attributes Datamablage	S8Z131EM ¥ mm ELUCA	м -
Profile view 4 & X 80x80x4 (Cut 1	► Ø 8	×
! <u>+</u> ! 48.93, 14.38		
Works	Details: Free Miling IP d? HT X	Ъ.
The Andrew Theory The Art and The Art and The Art and Art Art and Art	Demeter: 6 mm	
1	A-Adhee: 270.0 Caske: 0.0	-
	Casse: 0.0 direction: center •	+
	Coment:	-
		\$
•		mi 👫 😽 im



2.2.14 Creating a variables table

This example demonstrates the free definition of variables.

Variable	Value	Comment	
Var0	0.0		
Var1	0.0		
Var2	0.0		
Var3	0.0		
Var4	0.0		
Var5	0.0		
Var6	0.0		
Var7	0.0		
Var8	0.0		
Var9	0.0		
Var10	0.0		
Var11	0.0		
Var12	0.0		
Var13	0.0		
Var14	0.0		
Var15	0.0		
Var16	0.0		
Var17	0.0		
Var18	0.0		
Var19	0.0		

MINFORMATION



The quantity and names of the variables are predefined in the variable table and cannot be changed. The variables defined are only active in the selected job!

To create your own variable, you must perform the following steps:

- 1. Pressing the button opens the VARIABLES WINDOW menu in the profile machining tasks.
- 2. Mark the desired row in the variables table.
- 3. Open the input window in the VALUE cell with a double click and enter the desired value.
- 4. Open the input window in the **COMMENT** cell with a double click and enter the desired comment.
- 5. If further variables are to be defined, repeat steps 2 through 4.
- 6. Use the button to save the variable table to the selected folder.
- 7. Press the **EXAMPLE** button to apply the new values in the **VARIABLE TABLE** menu.





Index c

Copying / editing a profile	25
Create a new machining operation with disk milling cutter right/front	55
Create a new machining task with disk milling cutter	50
Create a new profile	8
Creating a depth tableautomatically	84
Creating a depth table manually	81
Creating a free form with polar coordinates	119
Creating a free form withoutpolar coordinates	109
Creating a job	6
Creating a new machining taskas a group	87
Creating a new machining taskas a machining series	62
Creating a new machining taskat BOTTOM	42
Creating a new machining task at FRONT	35
Creating a new machining task at TOP	33
Creating a new machining task for a free side using picking	60
Creating a new machining task manually	30
Creating a new machining task using a disk milling cutter left/rear	53
Creating a new machining task	68, 68
Creating a new machining task with a flexible angle head	58
Creating a new machining task with a macro	93
Creating a new machining task with a saw cut	74
Creating a new machining task with a saw cut and an additional notch	76
Creating a new machining task with a saw cut at the beginning of the part	70
Creating a new machining task with a saw cut at the end of the part	72

	Creating a new machining task 64, 78 with combo-thread
	Creating a new sub-program 95, 98
	Creating a profile
	Creating a profile manually
	Creating a variables table 123
	Creating variables 123
D	Depth table 80
E	Editing the support block
	Example of a free form circle 111
	Example of a free form 114 rectangle
	Examples of manually created
F	Free forms / Milling contours 108
G	Generate new machining task
	Generating new LEFT and
	Groups / Macros 86
I	Importing a free form 121
	Importing a profile in DXF 12, 23 format (optional)
М	Marchining Arch and Minar
	Machining task conditions
	Machining task data
	Manual changing of working 100 orientation
	Modifying a profile 26
	Modifying several values in 104 profile machining tasks
Ν	New machining task from
	New machining task from TOP 44 with Y-value picking
Ρ	Performing automatic priority 107 assignment in profile machining tasks
	Performing the filter function in 106 profile machining tasks
	Profile data 19



Q	Quick Guide - step by step guide to machining	1
S	Selecting a tool	1
	Setting up a tool	3
	Support blocks	27
т	Tool changer	5
U	Using copy and insert in profile machining tasks	103
	Using drag and drop in profilemachining tasks	105
	Using the CAM software	19