



Webinar:

Working and Programming with CAD Import

Instructor: Michael Wiendl



Company: Dr. Johannes HEIDENHAIN GmbH **Position:** Trainer for NC Programming



CAD import

- Fundamentals
- Specifying the workpiece preset
- Selecting the datum
- Selecting contours
- Selecting machining positions

Programming

- Open contour
- Closed contour
- Machining positions
- Datum shift and tilting the working plane

Tips and Tricks

- Navigation
- Contour transfer
- Path optimization
- TNC Club





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CAD Import





CAD viewer

- Standard (not an option)
- TNC 640 as of NC SW 34059x-05
- TNC 620 as of NC SW 81760x-02
- TNC 320 as of NC SW 771851-01
- Software option 98
- iTNC 530 as of 60642x-02/34049x-07
- Opening STEP, IGES, and DXF files
- Viewer for 3-D models
- Display of element information





DXF converter

- Software option 42
- TNC 640 as of NC SW 34059x-02
- TNC 620 as of NC SW 73498x-02/81760x-01
- TNC 320 as of NC SW 771851-01
- iTNC 530 as of 60642x-01/34049x-02
- Opening DXF files on the control
- Selecting machining positions and contours from the DXF file





CAD import

- Software option 42
- TNC 640 as of NC SW 34059x-08
- TNC 620 as of NC SW 81760x-05
- TNC 320 as of NC SW 77185x-05
- Opening of 3-D models (STEP/IGES) on the control
- Opening DXF files continues to be possible
- Defining the datum and the tilted working plane directly from the 3-D model
- Selecting machining positions and contours from the 3-D model

Image: Set Date: The set Da	
* 'Start machining 1	



Specifying the workpiece preset

- The designer specifies the workpiece preset (position of the coordinate system) of the 3-D model in the CAD system
- The preset for machining and the preset of the design often do not correspond to each other

Procedure:



- Adjust the preset by means of three points
 - The first point defines the origin of the coordinate system
 - The second point defines the positive X axis
 - The third point defines the positive Y axis





Specifying the workpiece preset

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Procedure:



- Adjust the preset by means of three points
 - The first point defines the origin of the coordinate system
 - The second point defines the positive X axis
 - The third point defines the positive Y axis

Result:



All other actions refer to this preset





Preset

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Deleting the preset / RESET X

Reset the preset with







Datum and tilting the working plane

For machining, you now define the datum and, if required, also the angles for tilting the working plane

Procedure:

Activate the datum



- Adjust the preset by means of three points
 - The first point defines the origin of the coordinate system (datum)
 - The second point defines the positive X axis
 - The third point defines the positive Y axis





Datum and tilting the working plane

For machining, you now define the datum and, if required, also the angles for tilting the working plane

Procedure:

Activate the datum I Part of the second s



- Adjust the preset by means of three points
 - The first point defines the origin of the coordinate system (datum)
 - The second point defines the positive X axis
 - The third point defines the positive Y axis

Result:

The datum is set



Select contours or machining positions based on this datum









Program output

- Save H the datum shift and the tilted working plane in a Klartext conversational program.
- Copy is the datum shift and the tilted working plane to the buffer memory. Insert them into the NC program with INSERT BLOCK.







Deleting the datum and working plane tilt / RESET

- Reset your selection with X
- Undo the last step with







Contours

Selecting contours

- Transferring a continuous contour with two mouse clicks:
 - Click the first element (consider the direction → arrow)
 - Click the last element





Contours

Selecting contours

- Transferring a continuous contour with two mouse clicks:
 - Click the first element (consider the direction \rightarrow arrow)
 - Click the last element

Procedure:

Activate contour selection



Select a contour

Program output

- Save H the contour in a Klartext conversational program.
- Copy L the contour to the buffer memory. Insert it into the NC program with INSERT BLOCK.





Selecting contours

- Transferring a continuous contour with two mouse clicks:
 - Click the first element (consider the direction → arrow)
 - Click the last element

Procedure:

- Activate contour selection
 - Select a contour

Program output

- Save H the contour in a Klartext conversational program.
- Copy the contour to the buffer memory. Insert it into the NC program with INSERT BLOCK.

→CONTOUR1 H	
0 BEGTN PGM CONTOUR1 MM	
1 * 8 contours	
2 ;* origin file = "Stem05.stp"	
3 ; FUNCTION MODE MILL	
4 ;* origin = X+0.0000 Y+0.0000 Z+22.5000	
5 ;* origin_plane_spatial = SPA+0.0000 SPB+0.0000 SPC+0.0	0000
6 ; PLANE RESET STAY	
7 ; TRANS DATUM AXIS X+11.7652 Y-19.7147 Z-38.3685	
8 ; PLANE SPATIAL SPA+90.0000 SPB+0.0000 SPC-8.3390 TURN	MB MAX FMAX
9 ; 1 + 3 line(s) + 5 arc(s) + 0 gap-filler(s), minimum a	arc radius = +4.2500
10 ; all_blk_form from complete file	
11 BLK FORM 0.1 Z X-22.223 Y-24 Z-22.5	
12 BLK FORM 0.2 X+70.9 Y+24 Z+22.5	
13 ; sel_blk_form from selection	
14 BLK FORM 0.1 Z X-4.5 Y-42.648 Z-11.6185	
15 BLK FORM 0.2 X+66.3317 Y+31.737 Z+11.6185	
16 L X+0 Y+0 Z+0	
17 L X+19.0759 Y+0 Z+0	
18 CC X+19.0759 Y+4.25	
19 C X+22.6687 Y+6.5203 DR+	
20 CC X+37.4627 Y+15.8685	
21 C X+22.6687 Y+25.2168 DR-	
22 CC X+19.0759 Y+27.487	
23 C X+19.0759 Y+31.737 DR+	
24 L X+0 Y+31./3/ Z+0	
25 CC X+0 Y+27.237	
26 C X-4.5 Y+27.237 DR+	
2/ L X-4.5 Y+4.5 Z+U	
2δ UU X+U Y+4.5	
30 ; " END DEM CONTOURS	
ST END POM CONTOURT MM	



Selecting Machining Positions

Selecting machining positions

- Click the elements
- Sequence for clicking = machining sequence

Procedure:



Select positions





Selecting Machining Positions

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Selecting machining positions

- Click the elements
- Sequence for clicking = machining sequence

Procedure:

- Activate position selection
- Select positions

Program output

- Save 💾 the positions in a point table.
- Copy the positions to the buffer memory. Insert them into the NC program with INSERT BLOCK.





Selecting machining positions

- Click the elements
- Sequence for clicking = machining sequence

Procedure:



Select positions

Program output

- Save H the positions in a point table
- Copy he positions to the buffer memory. Insert them into the NC program with INSERT BLOCK.

NR 4	Х	Y	Z	FADE	CLEARANCE
0	0.0000	-0.0000	0.0000	Ν	
1	36.0000	-0.0000	0.0000	Ν	
2	36.0000	-37.7370	0.0000	N	
3	0.0000	-37.7370	0.0000	N	

Point table .PNT

→C	ON	ITOUR1.H
36	;	PLANE RESET STAY
37	;	TRANS DATUM AXIS X+59.1453 Y-18.0000 Z-3.6315
38	;	PLANE SPATIAL SPA+90.0000 SPB+0.0000 SPC+90.0000 TURN MB MAX FMAX
39	;	BLK FORM 0.1 Z X+59.1203 Y-18.0000 Z-18.8685
40	;	BLK FORM 0.2 X+59.1703 Y+18.0000 Z+18.8685
41	L	X+0 Y+0 Z+0 FMAX M99
42	L	X+36 Y+0 Z+0 FMAX M99
43	L	X+36 Y-37.737 Z+0 FMAX M99
44	L	X+0 Y-37.737 Z+0 FMAX M99
45	; 1	* end positions

NC program .H



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Programming

🖲 Manual op	eration	Progr	amming			14:29
NC:\Webinar_CAD-	iewer\PGM.h					
PGM.h					1	
7 ;						
8 TOOL CALL "MILL	D8 ROUGH" Z S12	000 F2000				
9 M3						
0 :						
1 : ' origin_file	"Stem05.stp"					
2 ;' origin = X+0	.0000 Y+0.0000 Z	+22.5000				
3 PLANE RESET ST/	Y					
4 TRANS DATUM AXI	S X+11.7652 Y-	19.7147 Z-3	8.3685			
5 CALL LBL 100	e conservation de la conservation d	resultance shares		 		
6 PLANE SPATIAL S	PA+90 SPB+0 SPC-	8.339 TURN F	MAX			
7 :						
8 CONTOUR DEF						
P1 = "TNC:\Web	inar_M12\010_CAD	-Viewer\tilt	ed_pocket3H*			
9 CYCL DEF 20 COM	TOUR DATA					
Q1=-7.5 :MILI	ING DEPTH					
Q2-+1 , TOOI	PATH OVERLAP					
Q3=+0 ; ALL(WANCE FOR SIDE					
Q4=+0 ;ALL(WANCE FOR FLOOR					
Q5=+0 ; SURI	ACE COORDINATE					
Q6=+2 ;SET-	JP CLEARANCE					
Q7=+50 :CLE/	RANCE HEIGHT					_
Q8=+0 ;ROUN	JING RADIUS					
Q9=+1 ;ROT/	TIONAL DIRECTION					
O CYCL DEF 22 ROU	SH-OUT					
Q10=-4 ;PLU	NGING DEPTH					
Q11= AUTO FEE	D RATE FOR PLNGN	la .				
Q12- AUTO FEE	J HATE F. HOUGHN					
018-+0 ;00/	ASE HOUGHING TOO					
Q19- AUTO FEE	J HATE FUR REGIP					
0401 100 - E	ED DATE EACTOR					
0404-+0	NE BOUCH CTRATEC	v				
1 I X+0 X+0 7	100 RO FHAY	1. · ·				
				 	*	
SELECT	INSERT	CORY	and the second se	1		INSERT
00	01.001		FIND	INSERT	INSERT	LAST
BLUCK	BLOCK	- BLUCK		DEMONT	DEMONE	100 01 0014



Open contour

- Integrating the contour into the NC program:
 - SEL CONTOUR with the path for contour description

or

Cycle 14 with contour label

Machining with

- Cycle 25 with definition of
 - DEPTH
 - INFEED
 - Residual material can also be reworked, if required
- Define the type of approach with Cycle 270





Closed contour

- Rough-out with SL cycles. Nesting of contours with
 - CONTOUR DEF with the path for contour description and definition of island/pocket (up to nine contours are possible)

or

 Cycle 14 with contour labels (up to twelve contours are possible)

or

 Complex contour formula (up to 128 contours are possible)

Machining with

- Cycle 20 (Contour data)
- Cycle 21 (Pilot drilling, optional)
- Cycle 22 (Roughing)
- Cycle 23 (Floor finishing, optional)
- Cycle 24 (Side finishing, optional)





Machining positions

- Integrating the point table into the NC program with SEL PATTERN
- Machining with fixed cycles (e.g. Cycle 200)
- Calling the programmed machining cycle at any position from the point table with CYCL CALL PAT

Manual operation OProgramming Coprogramming	14:43
TNC:\Webinar_CAD-Viewer\PGM.h	
+PGILh	
34 ;	
35 ;' origin_file = "Stem05.stp" 36 :' origin = X+0 0000 Y+0 0000 7+22 5000	
77; * origin_plane_spatial = SPA+0.0000 SPB+0.0000 SPC+0.0000	
38 PLANE RESET STAY 39 TRANS DATUM AXIS X+30,6394 Y+22,4813 Z-38,3685	
IO CALL LBL 100	
12 CONTOUR DEF	
P1 = "TNC:\Webinar_W12\010_CAD-Viewer\tilted_pocket4.H"	
4 CALL LBL 101	
15 ; 16 :' origin file = "Stem05.stp"	
7 ;' origin = X+0.0000 Y+0.0000 Z+22.5000	
8 ;' origin_plane_spatial = SPA+0.0000 SPB+0.0000 SPC+0.0000 9 PLANE RESET STAY	
0 TRANS DATUM AXIS X-18.223 Y-6.5 Z-5	
2 PLANE SPATIAL SPA+90 SPB+0 SPC+0 TURN FMAX	
3 SEL PATTERN "THC:\Webinar_M12\010_CAD-Viewer\pos1.PNT"	
0200=+2 ;SET-UP CLEARANCE	
02017 ; DEPTH 0206150 ; FEED BATE FOR PLNCNG	
0334=+0.25 ;PLUNGING DEPTH	
0203=+7 ;SURFACE COORDINATE 0204=+50 :2ND_SET-UP_CLEARANCE	
Q335=+9 ;NONINAL DIAMETER	
Q342=+0 ;ROUGHING DIAMETER Q351=+1 ;CLIMB OR UP-CUT	
5 L X+0 Y+0 Z+100 R0 FMAX	
S L X+0 Y+0 Z+100 R0 FMAX SELECT CUT INSERT COTY	INSERT
COT INSERT COTY FINO INSERT INSERT BLOCK BLOC	INSERT LAST NC BLOCK
55 L X+0 Y+0 Z+100 R0 FMAX G SELECT CVT INSERT COCYT BLOOK BLOOK BLOOK FIND INSERT	INSERT LAST NC BLOCK
SELECT COT INSERT COT FINA SELECT COT INSERT COT FIND BLOCK BLOCK BLOCK FIND Manual operation Programming Manual operation Programming	INSERT LAST NC BLOCK
St. X+0 Y+0 Z+100 IN SERT COPY FIND INSERT	INSERT LAST NC BLOCK
St L X+0 Y+0 Z+100 R0 FMAX St L X+0 Y+0 Z+100 R0 FMAX St L X+0 Y+0 Z+100 R0 FMAX SELECT CV7 SLOCK INSERT COVY SLOCK FIN0 INSERT REMOVE Manual operation SP rogramming C Programming Programming Programming St X+0 Y+0 Z+100 R0 FMAX M99 St X+0 Y+0 Z+100 R0 FMAX M99	INSERT LAST NC BLOCK
S L X+0 Y+0 Z+100 R0 FMAX SELECT CV7 BLOCK INSERT COVY BLOCK FIND INSERT REMOVE INSERT REMOVE Manual operation Programming C Programming Programming SELECT	INSERT LAST NC BLOCK
SELECT COT INSERT COTY FIND INSERT INSERT BLOCK SLOCK BLOCK BLOCK FIND INSERT INSERT Manual operation Programming Programming Programming INSERT INSERT INSERT NC: Webinst_CAD-ViewerVF0M.h Programming INSERT INSERT INSERT INSERT 13 L X=0 V=0027100 R0 FMX M99 IA	INSERT LAST NC BLOCK
St. X+0 Y+0 Z+100 N0 FMAX SELECT C/7 BLOCK INSERT COVY BLOCK FIND ZHSERT INSERT Manual operation Programming NC: Webinar_CAD-ViewerVFBM. n Programming 3 L X+0 Y+0 Z-200 S 3 L X+0 Y-0 Z+100 R0 FMAX M99 CALL 101 S 5 : origin_file - "Stom05.stp" 7 : origin_file - "Stom05.stp" 7 7 : origin_fileStom0 V+0.0000 SPC+0.0000 SPC+0.0000 SPC+0.0000	INSERT LAST NC BLOCK
S L X+0 Y+0 Z+100 R0 FMAX S SELECT C/7 INSERT COVY FIND INSERT INSER	INSERT LAST NC BLOCK
S L X+0 Y+0 Z+100 R0 FMAX SELECT C/7 INSERT C/7 RLOCX	INSERT LAST LAST NO BLOCK
St. X+0 Y+0 Z+100 H0 FMAX SELECT C// BLOCK BLOCK BLOCK PIND INSERT Manual operation Programming MS: Webinar_CAD-ViewerYPGM.n PCML h 3 L X+0 Y+0 Z+200 H0 Programming Programming N0: Webinar_CAD-ViewerYPGM.n PCML h 3 L X+0 Y+0 Z+200 H0 3 L X+0 Y+0 0 2+100 H0 FMAX M99 4 CALL DL 101 S 5 : of rigin_file - "Stem05.stp" 7 : origin_mespatial - SH+0.0000 SP0+0.0000 SPC+0.0000 9 TMAN SNHW X/HX X+18.223 Y+0.5 Z-5 1 CALL UN 100 2 PLANE SPATIAL SPA-00 SPB-0 SPC-0 THMH FMAX 3 SL, PATIFIN TINC: Webins M21201 CAD-Viewer (DPGI.PHT"	INSERT LAST NC BLOCK
St. X+0 Y+0 Z+100 H0 FMAX SELECT CUT INSERT COTY BLOCK BLOCK SLOCK PIND ZHSERT Manual operation Programming Manual operation Programming NC: Webinar_CAD-ViewerVFBM.n Programming SL X+0 Y+0 ZHSERT St. X+0 Y+0 PIND SL X+0 Y+0.5 Z+5 I CALL BL SH0+0 SPE+0.0000 SPC+0 SEL PATHAL SPA+0 SPH-0 SPC+0 SEL PATHAL SPA+0 SPLANE SPA+0 SEL PATHAL SPA+0 </td <td>INSERT LAST NC BLOCK 14:45</td>	INSERT LAST NC BLOCK 14:45
5 L X+0 Y+0 Z+100 R0 FMAX S SELECT CV/ BLOCK INSERT COVY BLOCK FIND INSERT REMOVE Manual operation S Programming NC: Weblar, CAD-ViewerYPOM.n Programming 2 L X+0 Y+0 Z+100 R0 FMAX M99 FCAU 4 CALL DL 101 S 5 : origin_file - "Stem85.stp" 7 : origin_file - "Stem85.stp" 7 : origin_file - "Stem85.stp" 7 : origin_file - "Stem85.stp" 7 : origin_file - "Stem85.stp" 7 : origin_file - "Stem85.stp" 9 : Origin File SAH0.0000 SPC+0.0000 SPC+0.0000 SPC+0.0000 9 PLANE RESET STAV SEL PATTER SAH0.000 SPC+0 TURE FMAX 3 SEL PATTER SAH0.000 SPC+0 TURE FMAX SEL PATTER SAH0.000 SPC+0 TURE FMAX 3 SEL PATTER SAH0.000 SPC+0 TURE FMAX SEL PATTER SAH0.000 SPC+0 TURE FMAX 3 SEL PATTER SAH0.000 SPC+0 TURE FMAX SEL PATTER SAH0.000 SPC+0 TURE FMAX 3 SEL PATTER FMC CLEARANCE CVCU DF F00 ROME FMLLIND 0 2010-7 : SET-UP CLEARANCE CVE TURE F00 ROME FMLIND 0 2011-7 : SET-UP CLEARANCE CVE F00 F00 F00 FML FMAX	14:45
5 L X+0 Y+0 Z+100 R0 FMAX S SELECT CV/ BLOCK INSERT COV BLOCK INSERT INSERT BLOCK BLOCK BLOCK BLOCK FIND INSERT INSERT Manual operation Programming CM Programming S1 X+0 V+0 Z+100 R0 FMAX H99 FIND FIND FIND Y=CHIDIN Programming Y <td>14:45</td>	14:45
S L X+0 Y+0 Z+100 ND FMAX SELECT C/7 INSERT COPY FIND SECON BLOCK BLOCK FIND CPTN BLOCK BLOCK FIND CPTN BLOCK BLOCK FIND CPTN PLND PLOY AND CPTN	14:45
5 L X+0 Y+0 Z+100 R0 FMAX SELECT CUT INSERT CUT INSERT CUT INSERT <	14:45
5 L X+0 Y+0 Z-100 R0 FMAX S SELECT C/1 INSERT COVY FIND INSERT INSERT RLOCK BLOCK BLOCK BLOCK FIND INSERT	14:45
5 L X+0 Y+0 Z+100 N0 FMAX SELECT C// BLOCK INSERT C// BLOCK INSERT INSERT INSERT MAnual operation E/CC Programming Manual operation E/CC Programming No: Webinar_CAD-VieweryPEM. n FMA FMA 1 X+0 Y+0 Z+100 NB FMAX M99 CALL DL 101 FMA 2 X+0 Y+0 Z+100 NB FMAX M99 CALL DL 101 F 3 L X+0 Y+0 Z+100 NB FMAX M99 FALL DL 101 F 5 : c' origin_file - "Stom05.stp" F 7 : 'origin_file - Stom05.stp" F F 8 : FATHAN SPA+0.0000 SPC+0.0000 SPC+0.0000 SPC+0.0000 9 TMAK ENT STAY F18.223 Y+0.5 Z-5 I. 1 CALL UL TORY SPHEND SPHE0.0000 SPC+0.0000 SPC+0.0000 SPC ATTENT STAY SET PATTENT STAY 2 FLANK ENT STAY SET PATTENT STAY X-18.223 Y+0.5 Z-5 I. I. 2 FLANK ENT STAY SET PATTENT STAY X-18.223 Y+0.5 Z-5 I. I. 2 FLANK ENT STAY SET PATTENT STAY X-18.223 Y+0.5 Z-5 I. I. 2 FLANK ENT STAY SET PATTENT STAY SET	14:45
S L X+0 Y+0 Z+100 N0 FMAX SELECT C ^{U7} INSERT COY FIND Manual operation Programming NC: Weblar CAD-ViewerVF0M. N PMM.h S L X+0 Y+0 Z+100 N0 FMAX M99 4 CALL L0L 101 5 : (- Grigin_file = "Stam05.stp" 7 : Grigin_me_motile SA+0.0000 SF0+0.0000 9 FLAM RESET STAV 5 : (- Grigin_file = "Stam05.stp" 7 :	14:45
5 L X+0 Y+0 Z+100 N0 FMAX SELECT CUT INSERT COVY FIND INSERT INSERT SLOCK SLOCK SLOCK SLOCK PIND INSERT INSERT Manual operation Programming NC: Weblar CAD-Viewor/PRM. h PEML h - Standard Find INSERT 3 L X+0 Y+0 Z+100 R6 FMAX M99 - - - - 5 : cigin file - "Stam05.stp" - - - - 5 : cigin file - "Stam05.stp" -	14:45
5 L X+0 Y+0 Z+100 H0 FMAX SELECT C// BLOCK INSERT COV/ BLOCK INSERT INSERT BLOCK BLOCK BLOCK BLOCK INSERT INSERT BLOCK BLOCK BLOCK INSERT INSERT INSERT BLOCK BLOCK BLOCK FIND INSERT INSERT INS: WebDinar, CAD-Viewer/POM. h INSERT INSERT INSERT INSERT PMM.h INS Y+00 Z+100 R0 FMAX M98 HOMEN h02 HOMEN h03 St. X+0 Y+00 Z+100 R0 FMAX M98 HOMEN h03 SPLANE KSET STAY SPLANE KSET STAY SPLANE RSET STAY <td< td=""><td>14:45</td></td<>	14:45
5 L X+0 Y+0 Z+100 R0 FMAX SELECT CVT INSERT COVY FIND INSERT INSERT BLOOK BLOOK BLOOK RIOK FIND INSERT INSERT MAnual operation CP rogramming PRUL h Covy FIND INSERT INSERT I X+0 Y+0 Z+100 R0 FMAX M99 Covy FIND INSERT INSERT 1 L X+0 Y+0 Z+100 R0 FMAX M99 Covy FIND INSERT INSERT 1 L X+0 Y+0 Z+100 R0 FMAX M99 Covy FIND INSERT INSERT 1 L X+0 Y+0 Z+100 R0 FMAX M99 Covy FIND INSERT INSERT 1 L X+0 Y+0 Z+100 R0 FMAX M99 Covy FIND INSERT	14:45
5 L X:0 Y:0 Z:100 R0 FMAX SELECT CVT INSERT COVY FIND INSERT	14:45
15 L X:0 Y:0 Z:100 R0 FMAX DOPY FINO INSERT	14:45
5 L X+0 Y+0 Z+100 N0 FMAX INSERT COV FIND INSERT	14:45
S L X+0 Y+0 Z+100 ND FMAX SELECT CUT SLOCK SLOCK SLOCK FIND SLOCK SLOCK SLOCK SLOCK FIND NEWOYE BLOCK SLOCK SLOC	14:45
5 L X:0 Y:0 Z:100 R0 FMAX SELECT CVT INSERT COVY FINO INSERT	14:45



Datum shift and tilting the working plane

- Direct insertion into the NC program with INSERT BLOCK
 - PLANE RESET STAY
 - TRANS DATUM
 - PLANE SPATIAL (CAUTION, the default setting here is MB MAX; this may have to the adjusted)

🖱 Manual operation	Progr	amming				14:46
TNC-\Webipar CAD.Viewer\PGM h						
→PGU h					4	
019- AUTO : FEED BATE FOB BEC	IP.					
0208- MAX : BETRACTION FEED B	ATE					
0401=+100 FEED BATE FACTOR						
0404=+0 FINE BOUGH STRAT	FGY					
31 L X+0 X+0 7+100 B0 FMAX	201					
32 899						
33 CALL LBL 102						
34 -					1	
35 :' origin file = "Stem05 sto"						
36 : origin = X+0 0000 X+0 0000	7+22 5000					
17 . origin - XTO.0000 TTO.0000	+0 0000 SDB+0	0000 SPC+0 0	000			
20 DIAME DECET CTAV	·0.0000 3rb+0.	0000 31010.0	000		-	
TRANE RESET STAT	V-22 4912 7 5	9 3095				
10 CALL LBL 100	1122.4013 2.4	0.3003				
41 DIANE CRATTAL CRASON CRRSO CR	C 171 CC00 THE	IN CHAY				
42 CONTOUR DEE	C-111.0003 10	IN THAT				
B1 - TNC: Webiner M121010 C	AD Viewer) +111	od pockoti k				
42 L X+0 X+0 Z+100 D0 ENAX NO	0	eu_pocker4.h				
43 E X+0 7+0 2+100 R0 FMAX M9	9					
45 .						
40 ; 40 4						
<pre>#6 : origin_file = Stemus.stp</pre>	7.00 5000					
#/ ; origin = X+0.0000 ++0.0000	2+22.5000					
48 : origin_plane_spatial = SPA 48 plane_spatial = SPA	+0.0000 SPB+0.	0000 SPC+0.0	000			
FU PLANE RESEL STAT						
50 TRANS DATUM AX15 X-18.223 T	-6.5 Z-5					
ST GALL LBL 100						
52 PLANE SPATIAL SPA+90 SPB+0 SP	C+0 TURN FMAX					
53 SEL PATTERN "TNC:\Webinar_M12	\010_CAD-Viewe	er\pos1.PNT"				
54 CYCL DEF 208 BORE MILLING						
Q200=+2 ;SET-UP CLEARANCE						
0201=-/ ;DEPTH						
Q206=+150 ;FEED RATE FOR PL	NGNG					
Q334=+0.25 ; PLUNGING DEPTH					9	
aur.						TNREDT
SELECT INSERT		ETHO				THOENI
		E L MUL		TMSED	I INSTRUCT	LAST



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Tips and Tricks





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Quick switchover between CAD import and programming

- Open CAD import on the third desktop, so that you can leave it open during programming
- Use the toggle key for fast switchover

CAD-Viewer - TNC:/Webinar_CAD-Viewer/Stem05.stp	Manual operation Programming	14:55
	ThC: \Webinar_CAD-Viewer\PGM.h *PGM.h 0447-*10 :CONNECTION DISTANCE 0448-*2 :PATH EXTENSION 18 M99 17 18 TOOL CALL *WILL_D8_ROUGH* Z S12000 F2000 19 M3 20 : 21 :* origin_file = "Stem05.stp" 22 :* origin_Extension M XIS 23 PLAME BESET STAY AXIS X+11.7652 Y-19.7147 Z-38.3605 10 AL SPA:90 SPB:0 SPC-8.339 TURN FMAX Webinar_H12\010_CAD-Viewer\tilted_pocket3H* CONTORE DATA WILLING DEPTH ALLOWANCE FOR SIDE ALLOWANCE FOR SIDE ALLOWANCE FOR SIDE 05-*0 CONTORE DATA WILLING DEPTH 010**0 1100 ARCE COORDINATE 05**2 05**10 010**2 20 010**4 04**1 03**0 04**2 04**1 04**1 04**1 05**10 03	
File loaded without errors 30 MW 4 XY 0	BLOCK BLOCK BLOCK REMOVE REMOVE	NC BLOCK







- Define the tolerance for how far neighboring elements should be from each other
- Compensating inaccuracy \rightarrow





Selecting and Deselecting







Path Optimization

Available only in point transfer mode

- Click the positions
- Sort the positions with the path optimization function
- Clicking sequence shown in **RED**
- Positions after path optimization shown in GREEN





Program output

- Set the program output with 14 August 14 Au
- Output with XYZ coordinates
- Output with XY coordinates



X+0 Y+0 Z+0 L. X+0 Y+4.5 CC X-4.5 Y+4.5 DR-С X-4.5 Y+27.237 Z+0 L CC X+0 Y+27.237 X+0 Y+31.737 DR-С X+19.0759 Y+31.737 Z+0 L CC X+19.0759 Y+27.487 X+22.6687 Y+25.2168 DR-С CC X+37.4627 Y+15.8685 C X+22.6687 Y+6.5203 DR+ CC X+19.0759 Y+4.25 C X+19.0759 Y+0 DR-L X+0 Y+0 Z+0

1	X+0 X+0
L	
CC	X+0 Y+4.5
с	X-4.5 Y+4.5 DR-
L	X-4.5 Y+27.237
СС	X+0 Y+27.237
С	X+0 Y+31.737 DR-
L	X+19.0759 Y+31.737
сс	X+19.0759 Y+27.487
С	X+22.6687 Y+25.2168 DR-
сс	X+37.4627 Y+15.8685
С	X+22.6687 Y+6.5203 DR+
сс	X+19.0759 Y+4.25
С	X+19.0759 Y+0 DR-
L	X+0 Y+0



Any questions?

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Thank you very much for your attention!

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