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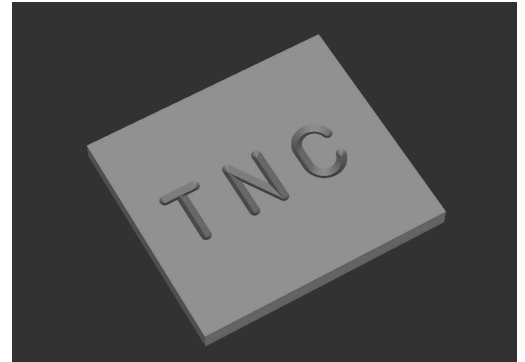
NC solutions

Description of NC program 9005

English (en)
6/2018

1 Description of NC program 9005_en.h

This NC program is for engraving texts in a line



Description

With this NC program, the control engraves texts defined by you into a workpiece. The texts are arranged in lines. You define the texts with an ASCII code. The NC program is therefore executable with contouring controls starting with the TNC 155 B/Q and later. For the engraving text, you can use uppercase letters, lowercase letters, and the most important special characters.

Geometric possibilities

The font is a vertical and simple standard style.

The characters used are kept fully proportional. This means that the control automatically modifies the character width and the distance between the characters to your defined font height.

You define your desired engraving depth with the milling depth input value (Q4).

Note regarding the control used

For the circular arcs, the NC program uses the CC and C functions. These functions are available starting with the TNC 150 and later. These circular arcs are programmed with three decimal places. On controls with four enterable decimal places, you must check whether you need to modify the accuracy requirements for the circle definitions in MP 213 or 7431 (machine parameter or user parameter).

Character set

The character set shown in the following ASCII code table has been realized. The characters are selected in the subprograms 84, 78, 67, etc.

ASCII table

Character	Code	Character	Code	Character	Code
Character	32	A	65	a	97
-	45	B	66	b	98
.	46	C	67	c	99
/	47	D	68	d	100
0	48	E	69	e	101
1	49	F	70	f	102
2	50	G	71	g	103
3	51	H	72	h	104
4	52	I	73	i	105
5	53	J	74	j	106
6	54	K	75	k	107
7	55	L	76	l	108
8	56	M	77	m	109
9	57	N	78	n	110
:	58	O	79	o	111
ß	130	P	80	p	112
		Q	81	q	113
		R	82	r	114
		S	83	s	115
		T	84	t	116
		U	85	u	117
		V	86	v	118
		W	87	w	119
		X	88	x	120
		Y	89	y	121
		Z	90	z	122

Determining the position

You define the position of the first character using parameters.

After the engraving of the character, the control shifts the current position by the width of the engraved character. The control saves the new position and uses this position for the next character.

You as the user don't need to do this yourself, since this is defined in the NC program, and the control performs all of the required calculations.

Program layout

The engraving program is designed as a single, complete program.

This NC program consists of the following program sections:

- 1 Definition of the cutting data and the tool call
- 2 Definition of the text blocks
- 3 Subprograms with the required calculations and path contours

Using the program

You as the user define all of the required parameters in the main section of the NC program. The subprograms remain unchanged because they contain complex calculations.

In the main program, you define the tool, all of the parameters required for machining, and the texts to be engraved.

You can also easily expand the main program to include further texts. Each text requires the input parameters of the layout and the characters to be engraved through definition of the Q1 = ASCII code of the character and through calling of the subprogram LBL1. When you define words or texts, you must program the definition and the LBL call separately for each character.

General parameters

Parameter	Name	Meaning
Q2	SCALING FACTOR EFFECT	Input of 0 or 1 matching the entry in machine parameter 213 or 7410 The scaling factor is effective on 2 or 3 axes
Q4	MILLING DEPTH	Depth of engraving; absolute value from the datum
Q6	MILLING FEED RATE	Traversing speed of the tool during machining
Q7	FEED RATE FOR PLUNGING	Traversing speed of the tool in the Z axis
Q8	SAFETY CLEARANCE	Z clearance between the tool and the datum approached by the control in rapid traverse prior to machining

Parameters for text in a straight line

Parameter	Name	Meaning
Q5	FONT HEIGHT	Character height in mm
Q21	STARTING POINT IN X	X coordinate of the first character relative to the datum
Q22	STARTING POINT IN Y	Y coordinate of the text line relative to the preset
Q29	ROTATION	Absolute rotation angle of the text line relative to the positive X direction

Explanation

Every character's datum lies at the level of the text line in the center of the character. You define the starting position before execution of the first character and at the beginning of each line with Q21 and Q22. Within the line, the control then recalculates the respective datum for the characters. However, if desired, you can also use Q21, Q22 to individually specify the position for specific characters prior to the call; for example, if you want to make a fine adjustment to the position.

