Contour programming in programGUIDE

Effectively program complex contours

ontour programming is the solution for effectively programming complex contours in turned and milled workpieces. With the aid of the integrated contour editor and the corresponding machining cycles in Sinumerik Operate, contours can be created and processed directly on the CNC control system. We briefly demonstrate the possibilities using the example of contour programming during milling in conjunction with programGUIDE.

Contour milling

1. The contour definition and machining are available in the program editor via the "Contour Milling" soft key.

2. The "Contour" soft key defines the contour and programs the contour call-up.

3. The other soft keys represent the cycles for the defined contour, for example, the cycles for path milling and for pocket and stud machining.

Contour definition and contour call-up in the program

Several options are available for contour definition. The contour is contained either in the main program or in the subprogram. The contour call-up also varies accordingly: a contour created in the main program is created in a label, whereas a contour in a subprogram is created within a label in the subprogram.

Call-up using contour name

1. Call-up of the contour named "CONTOUR_1" using CYCLE62 (call-up cycle).

2. Machining cycle (e.g., CYCLE63 milling studs); this relates to the previous CYCLE62.

3. Contour defined using the contour editor; this may also be before M30.





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| NC/UKS/MILL/PRGCONTOUR | 6 Contour |
| N10 UORKPIECE(, "", , "RECTANGLE", 0, 0, -100, -80, 100, 100)¶ | |
| N20 G0 G90 G54 G17 G64¶ | |
| N30 T="CUTTER 16"¶ | Path |
| N40 M6¶ 1 | mining |
| N50 S2000 F230 M3¶ | D |
| The second s | Rougn |
| YCLE62("CONTOUR 1" 1)¶ | um |
| YCLE63("PRG", 1, 100, 0, 1, 20, 0.1, , 0.5, 2, 0.1, 0.1, 0,, 1, 2,, 0, 201, 101)¶ | |
| T Company and the second se | Pocket |
| 1301 | |
| E_LAB_A_CONTOUR_1: ; #SM Z: 6¶ | Pocket |
| G17 G90 DIAMOF; *GP*¶ | res mat |
| G0 X40 Y0 ; *GP*¶ | |
| G1 Y20 RND=5 ; *GP*¶ | |
| X0 Y40 RND=10 ; *GP*¶ | Spigot |
| X-40 RND=5 ; *GP*¶ 5 | |
| Y-30 RND=5 ; *GP*¶ | Spigot |
| X-20 Y-40 RND=20 ; *GP*¶ | res. mat. |
| X15 RND=5 ; *GP*¶ | |
| Y-20 RND=10 ; *GP*¶ | |
| VAR DUD-18 - *CD* | <u> </u> |
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| | NC/UKS/MILL/PRG_CONT_LAB 6 | Select |
| | N10 UORKPIECE(, "", , "RECTANGLE", 0, 0, -100, -80, 100, 100)¶ | tool |
| | N20 G0 G90 G54 G17 G64¶ | |
| | N30 T="CUTTER 16"¶ | Build |
| | N40 M6¶ | group |
| | N50 S2000 F230 M3¶ | _ |
| | 1 | Search |
| 2 | 160 CYCLE62(, 2, "LAB1_START", "LAB2_STOP") | |
| 2 | 1/0 CYCLE63("PRG", 1, 100, 0, 1, 20, 0.1, , 0.5, 2, 0.1, 0.1, 0, , , , , , 1, 2, , , 0, 201, 10 | Mat |
| | | Flark |
| | 100 LHDI_STHKT: 1 | |
| 2 | 100 V 200 | Conu |
| | 110 Y-69 | 00009 |
| | 120 Y20¶ | |
| | 130 LOB2 STOP: 1 | Paste |
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| | N140 M30¶ | |
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Call-up using label

1. Call-up of the program code in the label.

2. Machining cycle (e.g., CYCLE63 milling studs); this relates to the previous CYCLE62.

3. LAB1_START: and LAB2_STOP: form the start and end point of the contour.

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| | NC/UKS/MILL/PRG_CONT_SUB 6 | Select |
| | N10 WORKPIECE(, "", , "RECTANGLE", 0, 0, -100, -80, 100, 100) | tool |
| | N20 G0 G90 G54 G17 G64¶ | |
| | N30 T="CUTTER 16"¶ | Build |
| | N40 M6¶ | group 💌 |
| 1 | N50 S2000 F230 M3¶ | |
| | 1 | Search |
| | 160 CYCLE62("SUB_CONT", 0, ,)¶ | |
| 2 | 170 CYCLE63("PRG", 1, 100, 0, 1, 20, 0.1, , 0.5, 2, 0.1, 0.1, 0, , , , , 1, 2, , , 0, 201, 101 | |
| 2 | | Mark |
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Call-up using subprogram

1. Call-up of the program code (or contour) contained in the subprogram "SUB_CONT".

2. Machining cycle (e.g., CYCLE63 milling studs); this relates to the previous CYCLE62.

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| | NC/WKS/MILL/PRG_CONT_SUB_LAB 6 | Select |
| | N10 WORKPIECE(, "", , "RECTANGLE", 0, 0, -100, -80, 100, 100) | tool |
| | N20 G0 G90 G54 G17 G64¶ | D 11 |
| | N30 T="CUTTER 16"¶ | Build |
| | | group |
| 1 | N50 52000 F230 H31 | Canada |
| Ξ. | V60_CYCLE62("SUB_CONT" 3_"LAB_SUB_START" "LAB_SUB_END")1 | Search |
| _ | 170 CYCLE63("PRG", 1, 100, 0, 1, 20, 0, 1, 0, 5, 2, 0, 1, 0, 1, 0,, 1, 2,, 0, 201, 101 | |
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| | NC/WKS/MILL/SUB_CONT.SPF 36 | Select |
| | | tool |
| | G1 Y20 RND=5 ·*GP*¶ | 0.11 |
| | X0 Y40 RND=10 : *GP*¶ | droup |
| | X-40 RND=5 ;*GP*¶ | 9. c . sp |
| | Y-30 RND=5 ;*GP*¶ | Coorch |
| | X-20 Y-40 RND=20 ; *GP*¶ | Joartin |
| | X15 KNU=5 ; "GP"] V.20 DND=10 : *CD* | |
| | 1.20 NND=10 . *GP*¶ | Mark |
| | Y0 : *GP*¶ | |
| | E_LAB_E_CONTOUR_1: ¶ | Copu |
| | 9 | Coby |

4 190 LAB1_START: 1 190 G1 X89 F2001 1100 Y-201 110 X-601 1120 Y201 130 LAB2_STOP: 1

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Call-up using label in subprogram

1. Machining of the contour contained in the subprogram "SUB_CONT" between the two labels "LAB_SUB_START" and "LAB_SUB_END".

2. Machining cycle (e.g., CYCLE63 milling studs); this relates to the previous CYCLE62.

i **INFO AND CONTACT**

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