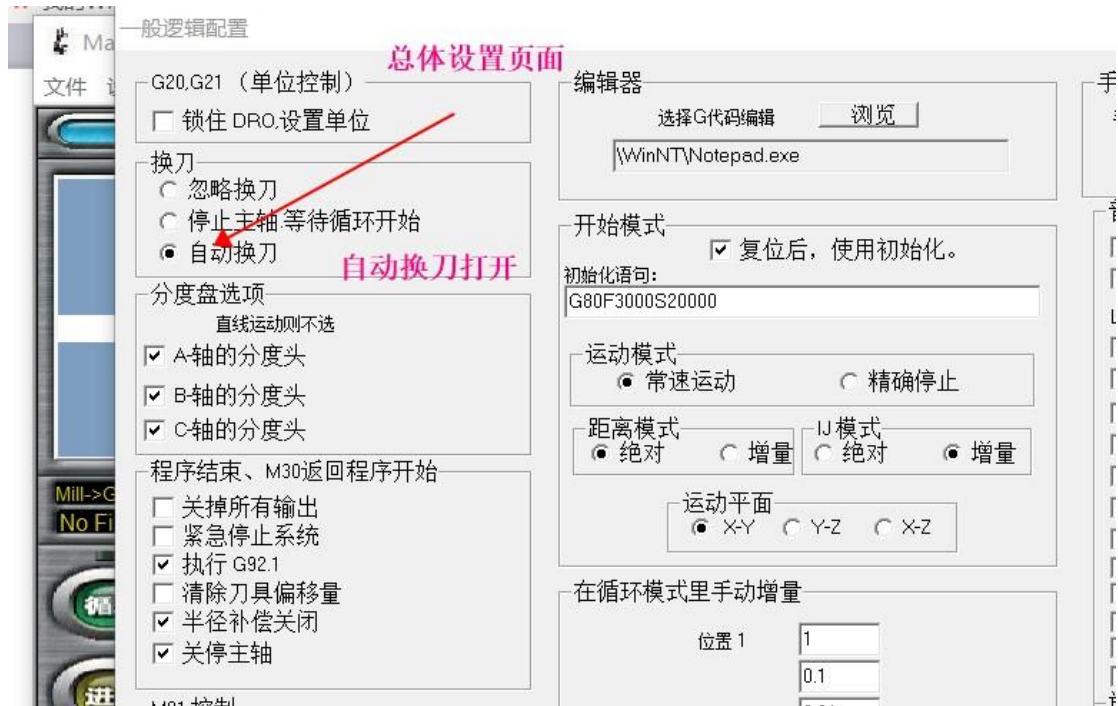


Mach3 自动换刀功能使用说明

首先介绍直排刀库的自动换刀实现，需要明确的是用的 BT30 类有定位口的换刀主轴还是简单的打刀缸，要用 BT30 类有定位卡口的换刀主轴要用伺服带主轴，主轴有探测零位开关，这里只讲简单气动打刀缸。

主要有以下几点：

1. 打开 mach3 自动换刀功能 在菜单【设置】里的【总体设置】打开下面的页面



2. 刀库配置

在菜单【设置】里的【刀库】打开下面的页面，配置你的刀库

Tool	Description	Diameter(D)	Height (H)	Diam. Wear	HeightWear
0	Ref. Tool	95203100092427...	95203100092427...	95203100092427...	95203100092427...
1	V20R3	3.1700	30	0	0
2	V30R6	6	30	0	0
3	V60R6	6	32	0	0
4	Empty	0.0000	0.0000	0.0000	0.0000
5	Empty	0.0000	0.0000	0.0000	0.0000

配置完以上参数关闭 mach3，保存参数配置，刀具高度是参照自动对刀器的高度标准填值，没有就写 0。

3. 自动换刀脚本编写

直排刀库我这里是举个例子，实际操作需要你自己去调脚本

基本流程就是原来有刀在时，换刀先回原来刀具的位置，放下刀，再到要换的刀位置，主轴向下，换刀，再回到工件坐标位置，换刀的刀具坐标都是以机械坐标为参考

```
'tool = GetSelectedTool()
'SetCurrentTool( tool )
Sub Main()
'OtPut =9
OldTool=GetOEMDRO(1200) 'Tool in spindle DRO You must add this to your settings screen
x = GetToolChangeStart( 0 )
y = GetToolChangeStart( 1 )
z = GetToolChangeStart( 2 )
a = GetToolChangeStart( 3 )
b = GetToolChangeStart( 4 )
c = GetToolChangeStart( 5 )

tool = GetSelectedTool()
NewTool=tool
'Tool Changer Macro(Bed Type)
MaxToolNum=8 'Max number off tools for the changer
ToolDown =-70 'Z Pos to Get or drop a tool
ToolUp =0.0 'Z Height to Rapid from tool to tool
If NewTool =OldTool Then
    Exit Sub
End If

While NewTool >MaxToolNum
    NewTool=Question("Enter New Tool Number up to " & MaxToolNum)
Wend
Code"G00 G53 Z" & ToolUp
While IsMoving()
Wend
Call MovePos(OldTool)
While IsMoving()
Wend
Code"G53 Z" & ToolDown
Code"G4 P0.75"
While IsMoving()
Wend
    ActivateSignal(output1)
If IsActive(Input1) Then 'Input#1
    Message "INPUT #1 input is active"
Else
    Message "INPUT #1 input is inactive"
```

```

' SystemWaitFor(Input1) 'input#1
End If

Code"G53 Z"& ToolUp
Call MovePos(NewTool)
  While IsMoving()
Wend
Code"G53 Z" & ToolDown
Code"G4 P.75"
While IsMoving()
Wend

DeActivateSignal(output1) 'Turn Off Draw bar to Clamp the tool
Code"G4 P1.0" 'Wait for the tool to Clamp
While IsMoving()
Wend
Code"G53 Z"& ToolUp
Call SetUserDRO(1200,NewTool)
SetCurrentTool(NewTool)
Code"G00 X"& x & "Y" & y 'Move back to where the tool change was Prompted
End Sub

Sub MovePos(ByVal ToolNumber As Integer)
Select Case ToolNumber ' 机械坐标偏移 XPOS YPOS
  Case Is=0
    Xpos=8.00
    Ypos=2.00
  Case Is=1
    Xpos=12.00
    Ypos=2.00
  Case Is=2
    Xpos=14.00
    Ypos=2.00
  Case Is=3
    Xpos=16.00
    Ypos=2.00
  Case Is=4
    Xpos=18.00
    Ypos=2.00
  Case Is=5
    Xpos=12.00
    Ypos=4.00

  Case Is=6

```

Xpos=14.00

Ypos=4.00

Case Is=7

Xpos=16.00

Ypos=4.00

Case Is=8

Xpos=18.00

Ypos=4.00

End Select

Code"G53 X"& Xpos & "Y" &Ypos

End Sub

Main

多把刀用气缸打切换的脚本如下：

OtPort1 = 10 'output#4

OtPort2 = 11 'output#5

OtPort3 = 12 'output#6

GotoSafeZ()

NowPosX=GetOEMDro(800)

NowPosY=GetOEMDro(801)

OldTool=GetOEMDRO(1200) 'Tool in spindle DRO You must add this to your settings screen

tool = GetSelectedTool()

NewTool=tool

MaxToolNum=3 'Max number off tools for the changer

' 最大刀数

If NewTool =OldTool Then

Exit Sub

End If

If OldTool=0 Then

SetUserDRO(1200,NewTool)

SetCurrentTool(NewTool)

Select Case NewTool

Case Is=0

DeActivateSignal(OtPort1)

DeActivateSignal(OtPort2)

DeActivateSignal(OtPort3)

```

Case Is=1
    ActivateSignal(OtPort1)
    DeActivateSignal(OtPort2)
    DeActivateSignal(OtPort3)
Case Is=2
    DeActivateSignal(OtPort1)
    ActivateSignal(OtPort2)
    DeActivateSignal(OtPort3)
Case Is=3
    DeActivateSignal(OtPort1)
    DeActivateSignal(OtPort2)
    ActivateSignal(OtPort3)
End Select

Exit Sub
End If
While NewTool >MaxToolNum
    NewTool=Question("Enter New Tool Number up to " & MaxToolNum)
Wend

Xpos=0
Ypos=0
'收回所有刀
    DeActivateSignal(OtPort1)
    DeActivateSignal(OtPort2)
    DeActivateSignal(OtPort3)

Select Case NewTool
    Case Is=0
        Xpos=0
        Ypos=0
    Case Is=1
        If OldTool=2 Then
            Xpos=160.8 '第一把刀相对第二把刀的偏移
            Ypos=0.00
        elseif OldTool=3 Then
            Xpos=317.7 '第一把刀相对第三把刀的偏移
            Ypos=-0.4
        End If
    Case Is=2
        If OldTool=1 Then
            Xpos=-160.8 '第二把刀相对第一把刀的偏移

```

```

        Ypos=0.00
        elseif OldTool=3 Then
            Xpos=156.9 ' 第二把刀相对第三把刀的偏移
            Ypos=0.00
        End If
    Case Is=3
        If OldTool=1 Then
            Xpos=-317.7 ' 第三把刀相对第一把刀的偏移
            Ypos=-0.4
        elseif OldTool=2 Then
            Xpos=-156.9 ' 第三把刀相对第二把刀的偏移
            Ypos=0.00
        End If

End Select
Code"G4P4"

'Code"G00G91X"& Xpos & "Y" &Ypos

' While IsMoving()
'Wend
' Code"G4P0.5"
newposX=NowPosX-Xpos
newposY= NowPosy-Ypos

SetOEMDro(800,newposX)

SetOEMDro(801,newposY)
Code"G4P0.2"
'Code"G90G00X"& NowPosX & "Y"& NowPosy
' While IsMoving()
'Wend

SetUserDRO(1200,NewTool)
'放下对应的刀具

Select Case NewTool
    Case Is=0
        DeActivateSignal(12)
        DeActivateSignal(11)
        DeActivateSignal(10)

    Case Is=1

```

```
DeActivateSignal(12)
  DeActivateSignal(11)
  ActivateSignal(10)
```

```
Case Is=2
  DeActivateSignal(12)
  DeActivateSignal(10)
  ActivateSignal(11)
```

```
Case Is=3

  DeActivateSignal(10)
  DeActivateSignal(11)
  ActivateSignal(12)
```

```
End Select
```

```
SetCurrentTool(NewTool)
Code"G4P4"
```