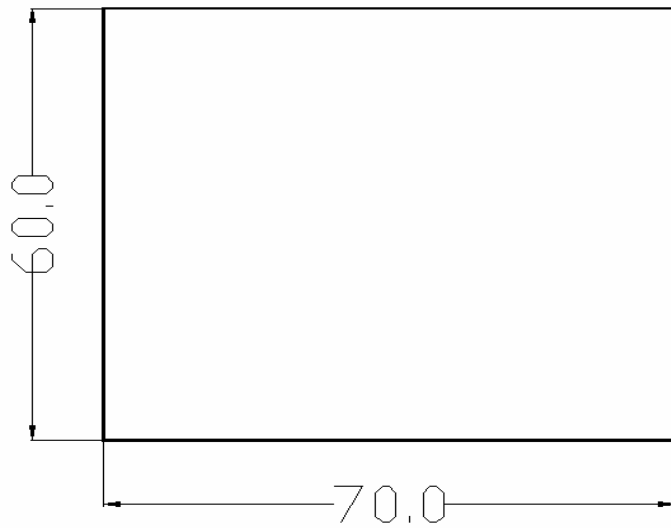


TECNOLOGIA DE CONTROLE NUMÉRICO

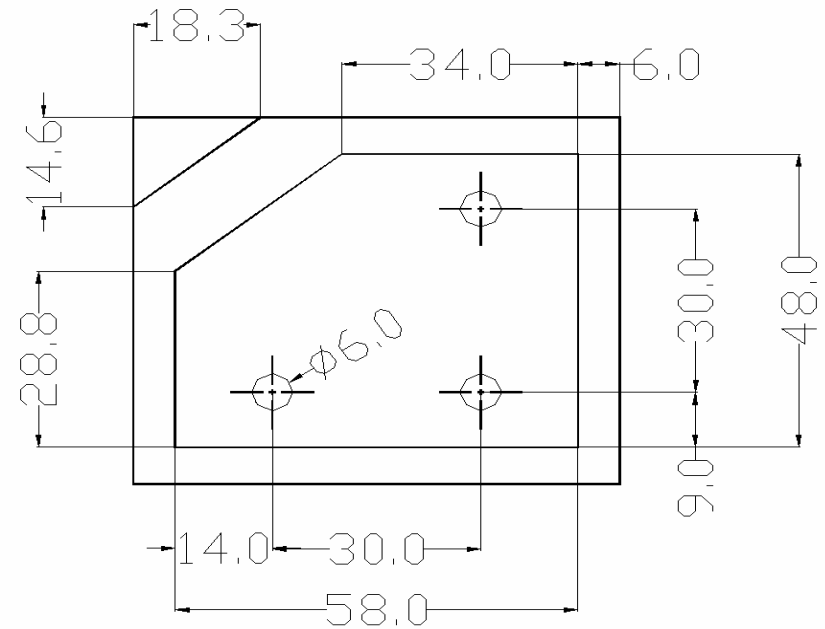
*PROGRAMAÇÃO DE
FRESADORAS CNC
(PEÇAS PRISMÁTICAS)*

Exemplo de Programa

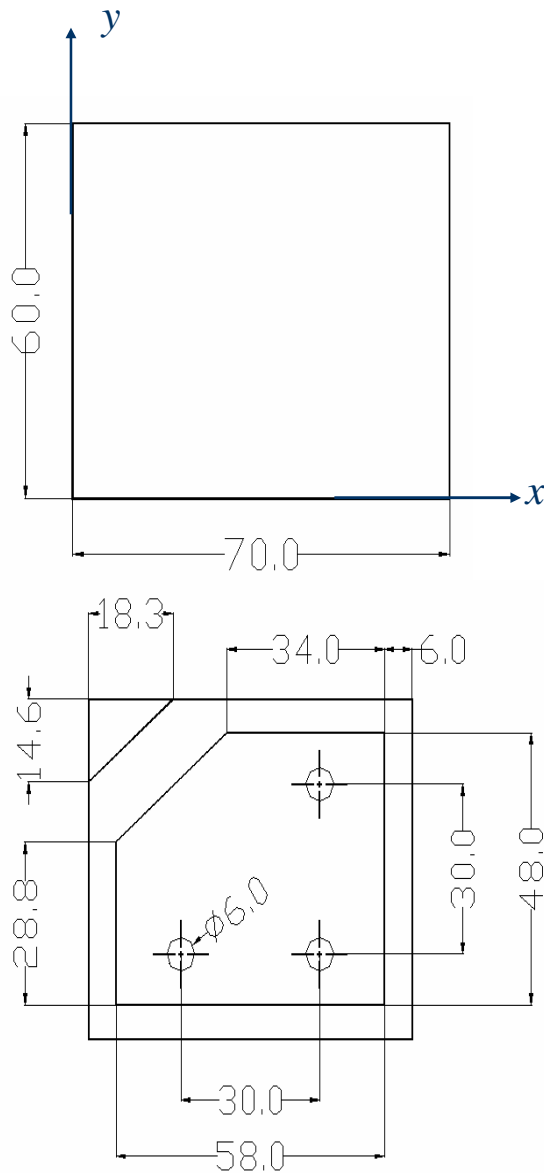
Matéria-Prima



Peça Acabada



Exemplo de Programa



G55 X200 Y80

Program 1

N001 M06 T1

N002 M03 rpm 400

N003 G01 X-8 Y0 Z0 XYFeed 150

N004 G01 X-8 Y0 Z-0.5 ZFeed 150

N005 G01 X70 Y0 Z-0.5 XYFeed 75

N006 G01 X70 Y60 Z-0.5 XYFeed 75

N007 G01 X30 Y60 Z-0.5 XYFeed 75

N008 G01 X0 Y40 Z-0.5 XYFeed 75

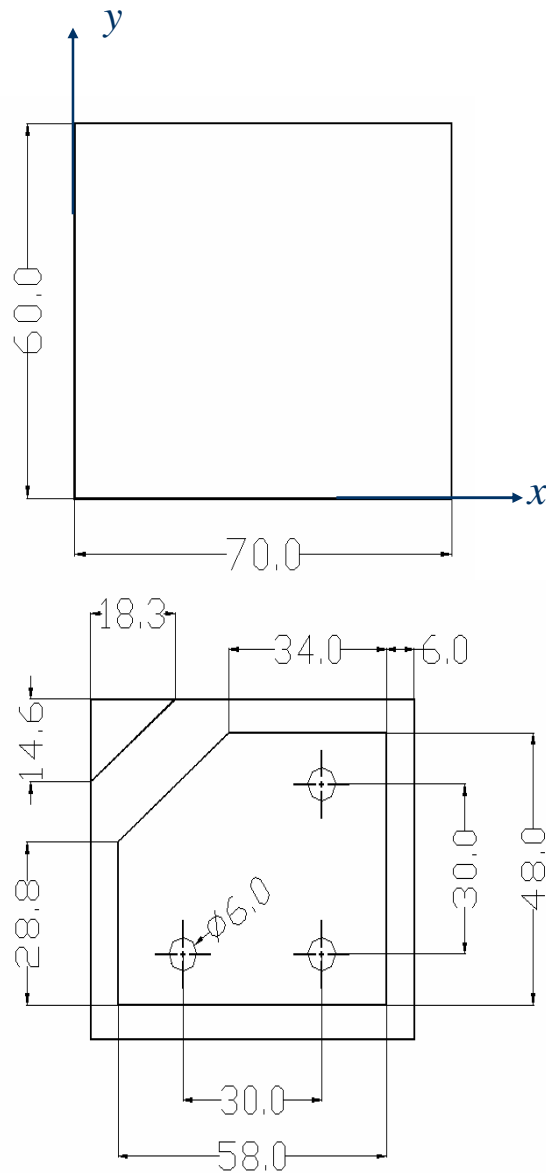
N009 G01 X0 Y0 Z-0.5 XYFeed 75

N010 G81 R3 E9 N7 Z-0.5

N011 M05

N012 M02

Exemplo de Programa

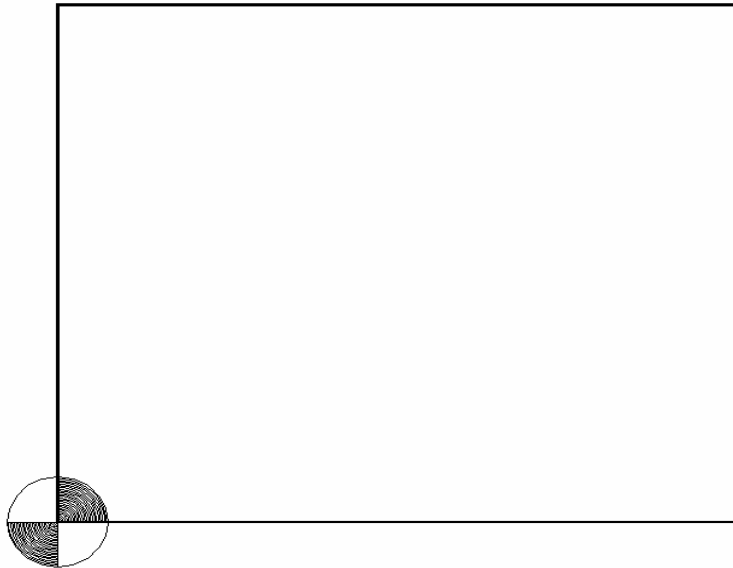


```
Tool Change  
G55 X200 Y80  
Program 2  
N001 M06 T2  
N002 M03 rpm 400  
N003 G01 X-8 Y0 Z0 XYFeed 150  
N004 G01 X20 Y15 Z10 XYFeed 150 ZFeed 150  
N005 G01 X20 Y15 Z-10 ZFeed 75  
N006 G01 X20 Y15 Z10 ZFeed 150  
N007 G01 X50 Y15 Z10 ZFeed 150  
N008 G01 X50 Y15 Z-10 ZFeed 75  
N009 G01 X50 Y15 Z10 ZFeed 150  
N010 G01 X50 Y45 Z10 ZFeed 150  
N011 G01 X50 Y45 Z-10 ZFeed 75  
N012 G01 X50 Y45 Z10 ZFeed 150  
N013 M05  
N014 M02
```

Interpretação do Programa

G55 X200 Y80

Estabelecer a referência (datum) no canto inferior direito da peça



Interpretação do Programa

G55 X200 Y80

Program 1

Número de identificação do programa

Interpretação do Programa

G55 X200 Y80

Program 1

N001 M06 T1

N001 Número da sequência

**M06 Troca da ferramenta (Fresa de topo
com diâmetro = 12mm)**

T1 Número da ferramenta

Interpretação do Programa

G55 X200 Y80

Program 1

N001 M06 T1

N002 M03 rpm 400

Girar o fuso no sentido horário com 400 rpm

Interpretação do Programa

G55 X200 Y80

Program 1

N001 M06 T1

N002 M03 rpm 400

N003 G01 X-8 Y0 Z0 XYFeed 150

**Mover para uma posição de segurança com
avanço = 150mm/min**

Interpretação do Programa

G55 X200 Y80

Program 1

N001 M06 T1

N002 M03 rpm 400

N003 G01 X-8 Y0 Z0 XYFeed 150

N004 G01 X-8 Y0 Z-0.5 ZFeed 150

**Abaixar a fresa de topo até a profundidade
de corte**

Interpretação do Programa

G55 X200 Y80

Program 1

N001 M06 T1

N002 M03 rpm 400

N003 G01 X-8 Y0 Z0 XYFeed 150

N004 G01 X-8 Y0 Z-0.5 ZFeed 150

N005 G01 X70 Y0 Z-0.5 XYFeed 75

**Mover do canto inferior
esquerdo da peça para o canto
inferior direito com avanço =
75mm/min**



Interpretação do Programa

G55 X200 Y80

Program 1

N001 M06 T1

N002 M03 rpm 400

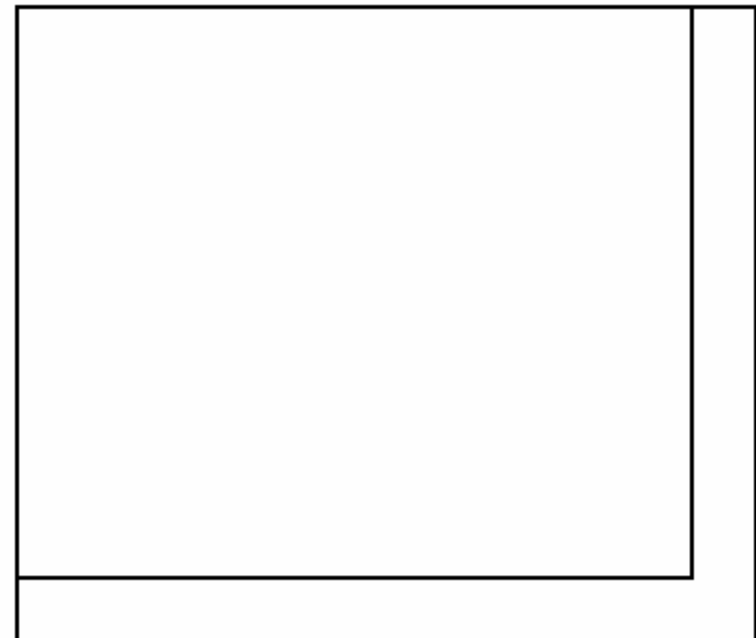
N003 G01 X-8 Y0 Z0 XYFeed 150

N004 G01 X-8 Y0 Z-0.5 ZFeed 150

N005 G01 X70 Y0 Z-0.5 XYFeed 75

N006 G01 X70 Y60 Z-0.5 XYFeed 75

**Mover do canto inferior
esquerdo da peça para o canto
inferior direito com avanço =
75mm/min**



Interpretação do Programa

G55 X200 Y80

Program 1

N001 M06 T1

N002 M03 rpm 400

N003 G01 X-8 Y0 Z0 XYFeed 150

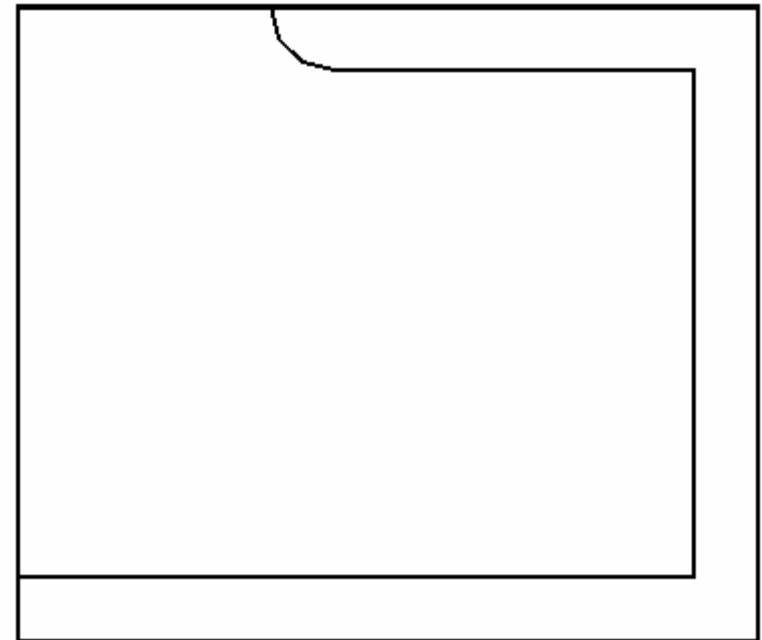
N004 G01 X-8 Y0 Z-0.5 ZFeed 150

N005 G01 X70 Y0 Z-0.5 XYFeed 75

N006 G01 X70 Y60 Z-0.5 XYFeed 75

N007 G01 X30 Y60 Z-0.5 XYFeed 75

Fresar horizontalmente até X=30



Interpretação do Programa

G55 X200 Y80

Program 1

N001 M06 T1

N002 M03 rpm 400

N003 G01 X-8 Y0 Z0 XYFeed 150

N004 G01 X-8 Y0 Z-0.5 ZFeed 150

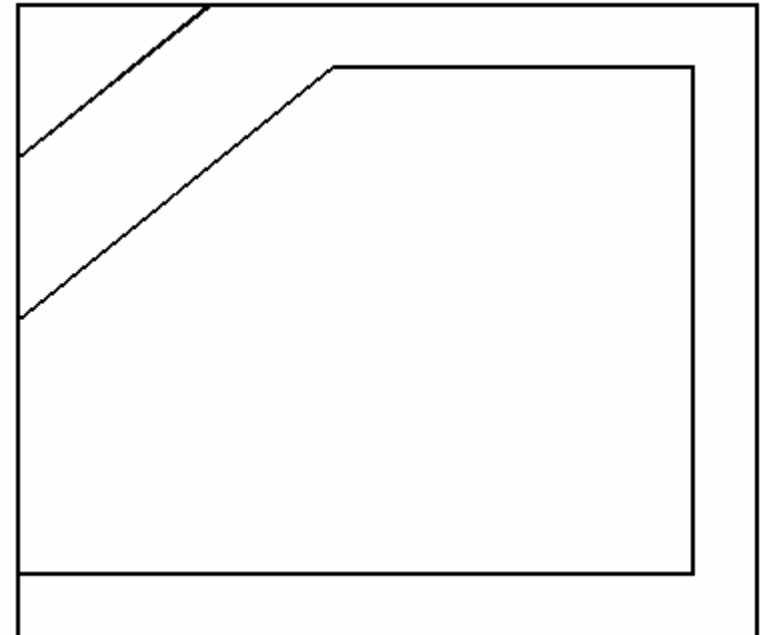
N005 G01 X70 Y0 Z-0.5 XYFeed 75

N006 G01 X70 Y60 Z-0.5 XYFeed 75

N007 G01 X30 Y60 Z-0.5 XYFeed 75

N008 G01 X0 Y40 Z-0.5 XYFeed 75

Fresar até X=0 e Y=40



Interpretação do Programa

G55 X200 Y80

Program 1

N001 M06 T1

N002 M03 rpm 400

N003 G01 X-8 Y0 Z0 XYFeed 150

N004 G01 X-8 Y0 Z-0.5 ZFeed 150

N005 G01 X70 Y0 Z-0.5 XYFeed 75

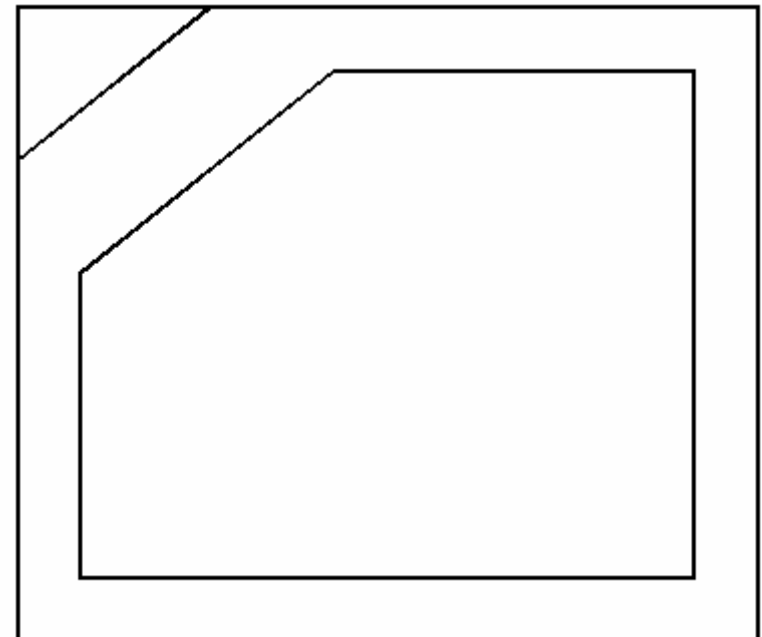
N006 G01 X70 Y60 Z-0.5 XYFeed 75

N007 G01 X30 Y60 Z-0.5 XYFeed 75

N008 G01 X0 Y40 Z-0.5 XYFeed 75

N009 G01 X0 Y0 Z-0.5 XYFeed 75

Completar o perfil



Interpretação do Programa

G55 X200 Y80

Program 1

N001 M06 T1

N002 M03 rpm 400

N003 G01 X-8 Y0 Z0 XYFeed 150

N004 G01 X-8 Y0 Z-0.5 ZFeed 150

N005 G01 X70 Y0 Z-0.5 XYFeed 75

N006 G01 X70 Y60 Z-0.5 XYFeed 75

N007 G01 X30 Y60 Z-0.5 XYFeed 75

N008 G01 X0 Y40 Z-0.5 XYFeed 75

N009 G01 X0 Y0 Z-0.5 XYFeed 75

N010 G81 R3 E9 N7 Z-0.5

**Repetir 7 vezes os blocos de N003 a N009
com incrementos de offset de Z=-0.5**

Interpretação do Programa

G55 X200 Y80

Program 1

N001 M06 T1

N002 M03 rpm 400

N003 G01 X-8 Y0 Z0 XYFeed 150

N004 G01 X-8 Y0 Z-0.5 ZFeed 150

N005 G01 X70 Y0 Z-0.5 XYFeed 75

N006 G01 X70 Y60 Z-0.5 XYFeed 75

N007 G01 X30 Y60 Z-0.5 XYFeed 75

N008 G01 X0 Y40 Z-0.5 XYFeed 75

N009 G01 X0 Y0 Z-0.5 XYFeed 75

N010 G81 R3 E9 N7 Z-0.5

N011 M05

Desligar o fuso

Interpretação do Programa

G55 X200 Y80

Program 1

N001 M06 T1

N002 M03 rpm 400

N003 G01 X-8 Y0 Z0 XYFeed 150

N004 G01 X-8 Y0 Z-0.5 ZFeed 150

N005 G01 X70 Y0 Z-0.5 XYFeed 75

N006 G01 X70 Y60 Z-0.5 XYFeed 75

N007 G01 X30 Y60 Z-0.5 XYFeed 75

N008 G01 X0 Y40 Z-0.5 XYFeed 75

N009 G01 X0 Y0 Z-0.5 XYFeed 75

N010 G81 R3 E9 N7 Z-0.5

N011 M05

N012 M02

Terminar o programa

Interpretação do Programa

Tool Change

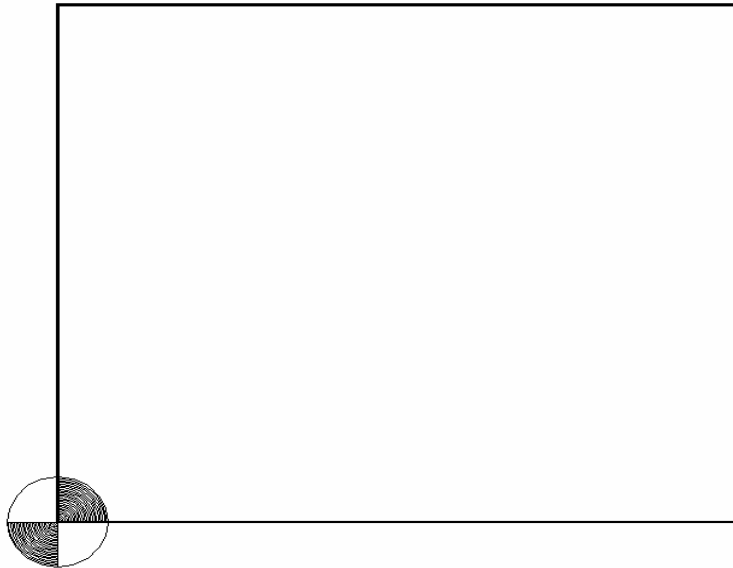
Trocar a ferramenta

Interpretação do Programa

Tool Change

G55 X200 Y80

Estabelecer a referência (datum) no canto inferior esquerdo da peça



Interpretação do Programa

Tool Change

G55 X200 Y80

Program 2

Número de Identificação do Programa

Interpretação do Programa

Tool Change

G55 X200 Y80

Program 2

N001 M06 T2

N001 Número da sequência

**M06 Trocar a ferramenta (Broca com
diâmetro=6mm)**

T2 Número da ferramenta

Interpretação do Programa

Tool Change

G55 X200 Y80

Program 2

N001 M06 T2

N002 M03 rpm 400

Girar o fuso no sentido horário com 400 rpm

Interpretação do Programa

Tool Change

G55 X200 Y80

Program 2

N001 M06 T2

N002 M03 rpm 400

N003 G01 X-8 Y0 Z0 XYFeed 150

**Mover para uma posição segura com avanço
= 150mm/min**

Interpretação do Programa

Tool Change

G55 X200 Y80

Program 2

N001 M06 T2

N002 M03 rpm 400

N003 G01 X-8 Y0 Z0 XYFeed 150

N004 G01 X20 Y15 Z10 XYFeed 150 ZFeed 150

Parar acima do centro do primeiro furo

Interpretação do Programa

Tool Change

G55 X200 Y80

Program 2

N001 M06 T2

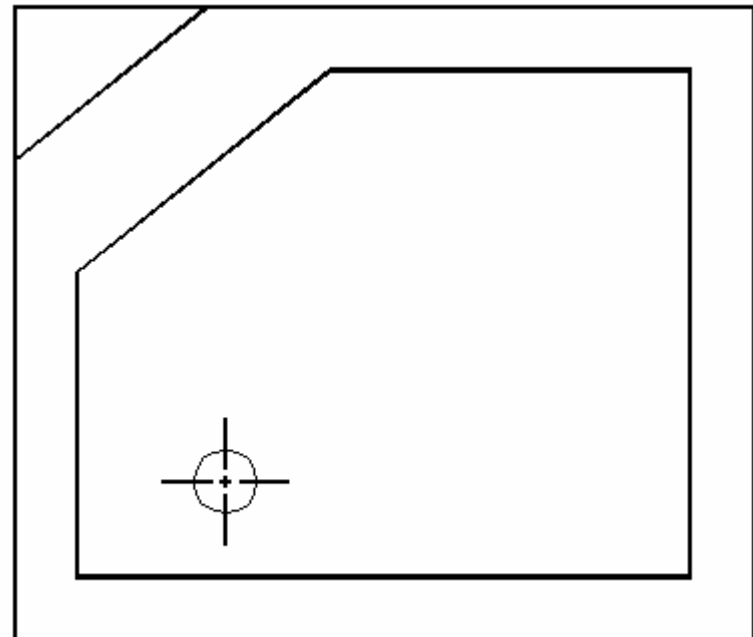
N002 M03 rpm 400

N003 G01 X-8 Y0 Z0 XYFeed 150

N004 G01 X20 Y15 Z10 XYFeed 150 ZFeed 150

N005 G01 X20 Y15 Z-10 ZFeed 75

Começar a fazer o primeiro furo



Interpretação do Programa

Tool Change

G55 X200 Y80

Program 2

N001 M06 T2

N002 M03 rpm 400

N003 G01 X-8 Y0 Z0 XYFeed 150

N004 G01 X20 Y15 Z10 XYFeed 150 ZFeed 150

N005 G01 X20 Y15 Z-10 ZFeed 75

N006 G01 X20 Y15 Z10 ZFeed 150

Recuar para uma posição acima do furo

Interpretação do Programa

Tool Change

G55 X200 Y80

Program 2

N001 M06 T2

N002 M03 rpm 400

N003 G01 X-8 Y0 Z0 XYFeed 150

N004 G01 X20 Y15 Z10 XYFeed 150 ZFeed 150

N005 G01 X20 Y15 Z-10 ZFeed 75

N006 G01 X20 Y15 Z10 ZFeed 150

N007 G01 X50 Y15 Z10 ZFeed 150

Parar acima do centro do segundo furo

Interpretação do Programa

Tool Change

G55 X200 Y80

Program 2

N001 M06 T2

N002 M03 rpm 400

N003 G01 X-8 Y0 Z0 XYFeed 150

N004 G01 X20 Y15 Z10 XYFeed 150 ZFeed 150

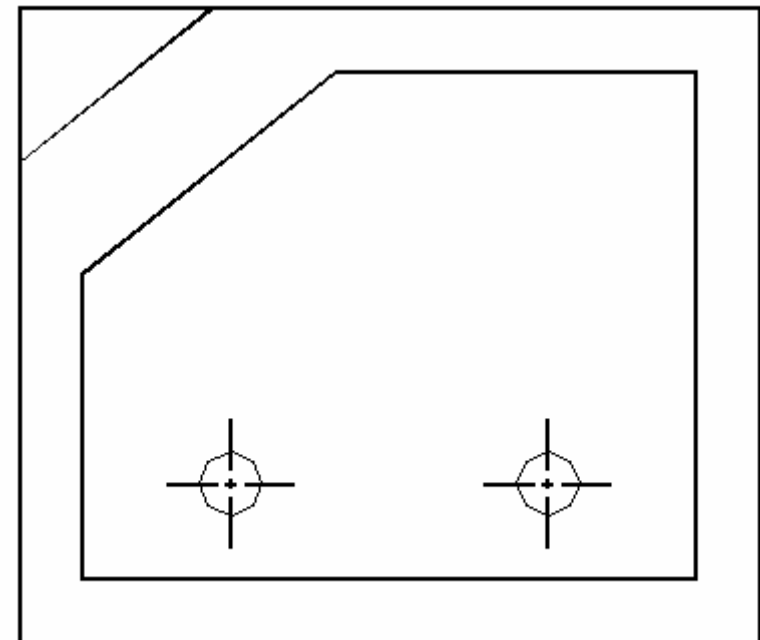
N005 G01 X20 Y15 Z-10 ZFeed 75

N006 G01 X20 Y15 Z10 ZFeed 150

N007 G01 X50 Y15 Z10 ZFeed 150

N008 G01 X50 Y15 Z-10 ZFeed 75

Fazer o segundo furo



Interpretação do Programa

Tool Change

G55 X200 Y80

Program 2

N001 M06 T2

N002 M03 rpm 400

N003 G01 X-8 Y0 Z0 XYFeed 150

N004 G01 X20 Y15 Z10 XYFeed 150 ZFeed 150

N005 G01 X20 Y15 Z-10 ZFeed 75

N006 G01 X20 Y15 Z10 ZFeed 150

N007 G01 X50 Y15 Z10 ZFeed 150

N008 G01 X50 Y15 Z-10 ZFeed 75

N009 G01 X50 Y15 Z10 ZFeed 150

Recuar para uma posição acima do segundo furo

Interpretação do Programa

Tool Change

G55 X200 Y80

Program 2

N001 M06 T2

N002 M03 rpm 400

N003 G01 X-8 Y0 Z0 XYFeed 150

N004 G01 X20 Y15 Z10 XYFeed 150 ZFeed 150

N005 G01 X20 Y15 Z-10 ZFeed 75

N006 G01 X20 Y15 Z10 ZFeed 150

N007 G01 X50 Y15 Z10 ZFeed 150

N008 G01 X50 Y15 Z-10 ZFeed 75

N009 G01 X50 Y15 Z10 ZFeed 150

N010 G01 X50 Y45 Z10 ZFeed 150

Parar acima do centro do terceiro furo

Interpretação do Programa

Tool Change

G55 X200 Y80

Program 2

N001 M06 T2

N002 M03 rpm 400

N003 G01 X-8 Y0 Z0 XYFeed 150

N004 G01 X20 Y15 Z10 XYFeed 150 ZFeed 150

N005 G01 X20 Y15 Z-10 ZFeed 75

N006 G01 X20 Y15 Z10 ZFeed 150

N007 G01 X50 Y15 Z10 ZFeed 150

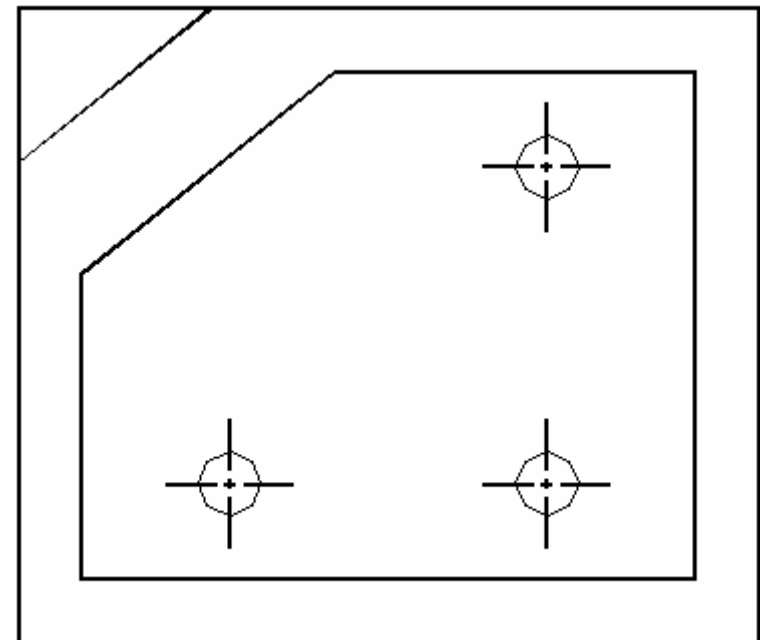
N008 G01 X50 Y15 Z-10 ZFeed 75

N009 G01 X50 Y15 Z10 ZFeed 150

N010 G01 X50 Y45 Z10 ZFeed 150

N011 G01 X50 Y45 Z-10 ZFeed 75

Fazer o terceiro furo



Interpretação do Programa

Tool Change

G55 X200 Y80

Program 2

N001 M06 T2

N002 M03 rpm 400

N003 G01 X-8 Y0 Z0 XYFeed 150

N004 G01 X20 Y15 Z10 XYFeed 150 ZFeed 150

N005 G01 X20 Y15 Z-10 ZFeed 75

N006 G01 X20 Y15 Z10 ZFeed 150

N007 G01 X50 Y15 Z10 ZFeed 150

N008 G01 X50 Y15 Z-10 ZFeed 75

N009 G01 X50 Y15 Z10 ZFeed 150

N010 G01 X50 Y45 Z10 ZFeed 150

N011 G01 X50 Y45 Z-10 ZFeed 75

N012 G01 X50 Y45 Z10 ZFeed 150

Recuar para uma posição acima do terceiro furo

Interpretação do Programa

Tool Change

G55 X200 Y80

Program 2

N001 M06 T2

N002 M03 rpm 400

N003 G01 X-8 Y0 Z0 XYFeed 150

N004 G01 X20 Y15 Z10 XYFeed 150 ZFeed 150

N005 G01 X20 Y15 Z-10 ZFeed 75

N006 G01 X20 Y15 Z10 ZFeed 150

N007 G01 X50 Y15 Z10 ZFeed 150

N008 G01 X50 Y15 Z-10 ZFeed 75

N009 G01 X50 Y15 Z10 ZFeed 150

N010 G01 X50 Y45 Z10 ZFeed 150

N011 G01 X50 Y45 Z-10 ZFeed 75

N012 G01 X50 Y45 Z10 ZFeed 150

N013 M05

Desligar o fuso

Interpretação do Programa

Tool Change

G55 X200 Y80

Program 2

N001 M06 T2

N002 M03 rpm 400

N003 G01 X-8 Y0 Z0 XYFeed 150

N004 G01 X20 Y15 Z10 XYFeed 150 ZFeed 150

N005 G01 X20 Y15 Z-10 ZFeed 75

N006 G01 X20 Y15 Z10 ZFeed 150

N007 G01 X50 Y15 Z10 ZFeed 150

N008 G01 X50 Y15 Z-10 ZFeed 75

N009 G01 X50 Y15 Z10 ZFeed 150

N010 G01 X50 Y45 Z10 ZFeed 150

N011 G01 X50 Y45 Z-10 ZFeed 75

N012 G01 X50 Y45 Z10 ZFeed 150

N013 M05

N014 M02

Terminar o programa