

เอกสารอ้างอิง

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ภาคผนวก ก
คำสั่งในการทำงานของโปรแกรม

สำหรับ Form 1 มี Code ดังนี้

```
Private Sub Command1_Click()
    slide = 1
    Form2.Show
End Sub
Private Sub Command2_Click()
    slide = 2
    Form2.Show
End Sub
```

สำหรับ Form 2 มี Code ดังนี้

```
Private Sub Command1_Click()
    moldplate = 1
    Form3.Show
End Sub
Private Sub Command2_Click()
    moldplate = 2
    Form3.Show
End Sub
Private Sub Command3_Click()
    Unload Me
    Form1.Show
End Sub
Private Sub Form_Load()
    Form1.Hide
    If slide = 2 Then
        Command2.Enabled = False
    End If
End Sub
```

สำหรับ Form 3 มี Code ดังนี้

```
Private Sub Command1_Click()
```

```

ejec = 1
If ejecinput.Text = "" Then
    MsgBox "โปรดใส่ระยะปลดชิ้นงาน", vbOKOnly, "Error"
Else
    ejecdis = ejecinput.Text
End If
Form4.Show
Unload Me
End Sub
Private Sub Command2_Click()
    ejec = 2
    If ejecinput.Text = "" Then
        MsgBox "โปรดใส่ระยะปลดชิ้นงาน", vbOKOnly, "Error"
    Else
        ejecdis = ejecinput.Text
    End If
    Form4.Show
    Unload Me
End Sub
Private Sub Command3_Click()
    Unload Me
    Form2.Show
End Sub
Private Sub Form_Load()
    Form2.Hide
End Sub

```

สำหรับ Form 4 มี Code ดังนี้

```

Private Sub Command1_Click()
    ' On Error GoTo Errorshow
    If slide = 2 Then
        If undercutinput.Text = "" Then

```

```

    MsgBox "โปรดใส่ข้อมูลให้ครบถ้วน", vbOKOnly, "Error"
End If
End If

If x_length_input.Text = "" Then
    MsgBox "โปรดใส่ข้อมูลให้ครบถ้วน", vbOKOnly, "Error"
ElseIf y_length_input.Text = "" Then
    MsgBox "โปรดใส่ข้อมูลให้ครบถ้วน", vbOKOnly, "Error"
ElseIf h_length_input.Text = "" Then
    MsgBox "โปรดใส่ข้อมูลให้ครบถ้วน", vbOKOnly, "Error"
ElseIf h_cavi_input.Text = "" Then
    MsgBox "โปรดใส่ข้อมูลให้ครบถ้วน", vbOKOnly, "Error"
ElseIf t_length_input.Text = "" Then
    MsgBox "โปรดใส่ข้อมูลให้ครบถ้วน", vbOKOnly, "Error"
End If

Call optarea
Call optarea

xlength = x_length_input.Text / 10
ylength = y_length_input.Text / 10
hlength = h_length_input.Text / 10
hcavilength = h_cavi_input.Text / 10
hcorelength = Label7.Caption / 10
tlength = t_length_input.Text
parea = parea_input.Text
undercutdis = undercutinput.Text
Form5.Show
lratio = parea_input / sarea_input
lratio_text = lratio
If lratio >= 0.99 Then
    xlength = xlength * lratio
    ylength = ylength * lratio
ElseIf lratio < 0.99 Then

```



```

xlength = xlength
ydlength = ylength
End If
If opt1.Value = True Then
    section = "secs"
ElseIf opt2.Value = True Then
    section = "secc"
ElseIf opt3.Value = True Or opt4.Value = True Then
    section = "seco"
End If
'Errorshow:
'Unload Form5
'MsgBox "โปรดใส่ข้อมูลให้ครบถ้วน", vbOKOnly, "Error"
'Form4.Show
End Sub
Private Sub Command3_Click()
Dim hl As Single
Dim hcavi As Single
Dim hcore As Single
    hl = h_length_input.Text
    hcavi = h_cavi_input.Text
    hcore = hl - hcavi
    Label7.Caption = hcore
Call optarea
Call optarea
End Sub
Private Sub Command2_Click()
    Unload Me
    Form3.Show
End Sub
Private Sub Form_Load()
    Form3.Hide

```

```

If slide = 1 Then
    undercutinput.Visible = False
    undercut_label1.Visible = False
    undercut_label2.Visible = False
    Picture1.Visible = True
    Picture2.Visible = False
Else
    undercutinput.Visible = True
    undercut_label1.Visible = True
    undercut_label2.Visible = True
    Picture1.Visible = False
    Picture2.Visible = True
End If

'sarea_input.Text = x_length_input.Text * y_length_input.Text
'parea_input.Text = x_length_input.Text * y_length_input.Text
'Call optarea
End Sub

Private Sub optarea()
If opt1.Value = True Then
    opt2.Value = False
    opt3.Value = False
    opt4.Value = False
    parea_input = x_length_input.Text * y_length_input.Text
    y_length_input.Enabled = True
    parea_input.Enabled = False
ElseIf opt2.Value = True Then
    opt1.Value = False
    opt3.Value = False
    opt4.Value = False
    parea_input.Text = (3.14 / 4) * (x_length_input.Text) ^ 2
    y_length_input.Enabled = False
    y_length_input.Text = x_length_input.Text

```

```

    para_input.Enabled = False
ElseIf opt3.Value = True Then
    opt1.Value = False
    opt2.Value = False
    opt4.Value = False
    para_input.Text = (1 / 2) * (x_length_input.Text) ^ 2
    y_length_input.Enabled = True
    para_input.Enabled = False
ElseIf opt4.Value = True Then
    opt1.Value = False
    opt2.Value = False
    opt3.Value = False
    y_length_input.Enabled = True
    para_input.Enabled = True
End If
sarea_input = x_length_input.Text * y_length_input.Text
End Sub

Private Sub opt1_Click()
'Call optarea
End Sub

Private Sub opt2_Click()
'Call optarea
End Sub

Private Sub Opt3_Click()
'Call optarea      :
End Sub

Private Sub Opt4_Click()
'Call optarea
End Sub

Private Sub para_input_Change()
'Call optarea
End Sub

```

```
Private Sub t_length_input_Change()
```

```
  parea_input.Text = ""
```

```
  sarea_input.Text = ""
```

```
End Sub
```

```
Private Sub x_length_input_Change()
```

```
  parea_input.Text = ""
```

```
  sarea_input.Text = ""
```

```
End Sub
```

```
Private Sub y_length_input_Change()
```

```
  parea_input.Text = ""
```

```
  sarea_input.Text = ""
```

```
End Sub
```

```
Private Sub h_cavi_input_Change()
```

```
  parea_input.Text = ""
```

```
  sarea_input.Text = ""
```

```
End Sub
```

```
Private Sub h_length_input_Change()
```

```
  parea_input.Text = ""
```

```
  sarea_input.Text = ""
```

```
End Sub
```

สำหรับ Form 5 มี Code ดังนี้

```
Private Sub Command1_Click()
```

```
  cavnum = cavnum_input.Text
```

```
  pweight = pweight_input      :
```

```
  p = pressure.Text
```

```
  e = yield.Text
```

```
  f = bend.Text / 10
```

```
  x1betcav = x1betcav_input.Text / 10
```

```
  x2betcav = x2betcav_input.Text / 10
```

```
  y1betcav = y1betcav_input.Text / 10
```

```
  y2betcav = y2betcav_input.Text / 10
```

```

If optegate.Value = True Then
    gatestr = "Egate"
ElseIf optsgate.Value = True Then
    gatestr = "Sgate"
ElseIf optpgate.Value = True Then
    gatestr = "Pgate"
End If
Select Case cavnum
Case "1"
    lrunnerlcav = 0
    lrunnerall = 0
Case "2x"
    lrunnerlcav = x1betcav / 2
    lrunnerall = xlength / 2
Case "2y"
    lrunnerlcav = y1betcav / 2
    lrunnerall = ylength / 2
Case "4"
    lrunnerlcav = xlength / 2 + x1betcav / 2 + y1betcav / 2
    lrunnerall = xlength + x1betcav + y1betcav * 2
Case "4x"
    lrunnerlcav = ylength + y1betcav * 2 + x1betcav / 2 + x2betcav + xlength
    lrunnerall = ylength * 2 + y1betcav * 2 + x1betcav + x2betcav * 3 + xlength * 2
Case "4y"
    lrunnerlcav = xlength + x1betcav * 2 + y1betcav / 2 + y2betcav + ylength
    lrunnerall = xlength * 2 + x1betcav * 2 + y1betcav + y2betcav * 3 + ylength * 2
Case "8x"
    lrunnerlcav = x1betcav / 2 + x2betcav + xlength + y1betcav / 2 + ylength / 2
    lrunnerall = x1betcav + x2betcav * 5 + xlength * 2 + y1betcav * 2 + ylength * 2
Case "8y"
    lrunnerlcav = y1betcav / 2 + y2betcav + ylength + x1betcav / 2 + xlength / 2
    lrunnerall = y1betcav + y2betcav * 5 + ylength * 2 + x1betcav * 2 + xlength * 2

```

Case "16"

$lrunner1cav = x1betcav / 2 + x2betcav + xlength * 1.5 + y1betcav / 2 + ylength + y2betcav$

$lrunnerall = x1betcav + x2betcav * 5 + xlength * 6 + y1betcav * 2 + ylength * 4 + y2betcav * 10$

End Select

Form6.Show

End Sub

Private Sub Command2_Click()

 Unload Me

 Form4.Show

End Sub

Private Sub Form_Load()

 Call cavnum3

 Form4.Hide

 Combo1.AddItem ("PS")

 Combo1.AddItem ("ABS")

 Combo1.AddItem ("PE")

 Combo1.AddItem ("PP")

 Combo1.AddItem ("PA")

 Combo1.AddItem ("PC")

 Combo1.AddItem ("POM")

 Combo2.AddItem ("AISI 1045 (S45C)")

 Combo2.AddItem ("AISI 1055 (S55C)")

 Combo2.AddItem ("AISI P20")

 Combo2.AddItem ("AISI 420")

 Combo2.AddItem ("AISI H13")

 If slide = 1 Then

 Combo3.AddItem ("1")

 Combo3.AddItem ("2X")

 Combo3.AddItem ("2Y")

 Combo3.AddItem ("4")

 Combo3.AddItem ("4X")

 Combo3.AddItem ("4Y")

```
Combo3.AddItem ("8X")
Combo3.AddItem ("8Y")
Combo3.AddItem ("16")
Else
Combo3.AddItem ("1")
Combo3.AddItem ("2Y")
Combo3.AddItem ("4Y")
End If
Combo1.ListIndex = 0
Combo2.ListIndex = 0
Combo3.ListIndex = 0
Picture1.Visible = True
Picture2.Visible = False
Picture3.Visible = False
Picture4.Visible = False
Picture5.Visible = False
Picture6.Visible = False
Picture7.Visible = False
Picture8.Visible = False
Picture9.Visible = False
    If opt1.Value = True Then
        pressure.BorderStyle = 0
        pressure.Enabled = False
        yield.BorderStyle = 0
        yield.Enabled = False
    Else
        pressure.BorderStyle = 1
        pressure.Enabled = True
        yield.BorderStyle = 1
        yield.Enabled = True
    End If
    If moldplate = 1 Then
```

```
optegate.Visible = True
optsgate.Visible = True
optpgate.Visible = False
optegate.Value = True
optsgate.Value = False
ElseIf moldplate = 2 Then
    optegate.Visible = False
    optsgate.Visible = False
    optpgate.Visible = True
    optpgate.Value = True
End If
x1betcav_input.Enabled = False
x2betcav_input.Enabled = False
y1betcav_input.Enabled = False
y2betcav_input.Enabled = False
optsd.Value = True
bend.Enabled = False
Optfr1.Value = False
Optfr2.Value = False
Optfr1.Enabled = False
Optfr2.Enabled = False
Fratio_text.Text = ""
Fratio_text.Enabled = False
End Sub
Private Sub opt1_Click()
    Call opt
End Sub
Private Sub opt2_Click()
    Call opt
End Sub
Private Sub opt()
    If opt1.Value = True Then
```

```
pressure.BorderStyle = 0
pressure.Enabled = False
yield.BorderStyle = 0
yield.Enabled = False
Else
pressure.BorderStyle = 1
pressure.Enabled = True
yield.BorderStyle = 1
yield.Enabled = True
End If
End Sub
Private Sub optf()
    If optsd.Value = True Then
        bend.Enabled = False
        bend.Text = 0.05
    ElseIf optpre.Value = True Then
        bend.Enabled = False
        bend.Text = 0.02
    ElseIf optm.Value = True Then
        bend.Enabled = True
    End If
End Sub
Private Sub Combo1_Click()
    Select Case Combo1.ListIndex
    Case 0 :
        'Me.Label1.Caption = "PS"
        Me.pressure.Text = "207"
        pmaterial = "PS"
        Call Optf2
    Case 1
        'Me.Label1.Caption = "ABS"
        Me.pressure.Text = "336"
```

```
pmaterial = "ABS"
Call Optf2
Case 2
'Me.Label1.Caption = "PE"
Me.pressure.Text = "351"
pmaterial = "PE"
Call Optf2
Case 3
'Me.Label1.Caption = "PP"
Me.pressure.Text = "210"
pmaterial = "PP"
Call Optf2
Case 4
'Me.Label1.Caption = "PA"
Me.pressure.Text = "302"
pmaterial = "PA"
Call Optf2
Case 5
'Me.Label1.Caption = "PC"
Me.pressure.Text = "571"
pmaterial = "PC"
Call Optf2
Case 6
'Me.Label1.Caption = "POM"
Me.pressure.Text = "366"
pmaterial = "POM"
Call Optf2
End Select
End Sub
Private Sub Combo2_Click()
Select Case Combo2.ListIndex
Case 0
```

```
'Label19.Caption = "AISI 1045"
```

```
yield.Text = "2090000"
```

```
smaterial = "1045"
```

```
Case 1
```

```
'Label19.Caption = "AISI 1055"
```

```
yield.Text = "2090000"
```

```
smaterial = "1055"
```

```
Case 2
```

```
'Label19.Caption = "AISI P20"
```

```
yield.Text = "2090000"
```

```
smaterial = "P20"
```

```
Case 3
```

```
'Label19.Caption = "AISI 420"
```

```
yield.Text = "2040000"
```

```
smaterial = "420"
```

```
Case 4
```

```
'Label19.Caption = "AISI H13"
```

```
yield.Text = "2140000"
```

```
smaterial = "H13"
```

```
End Select
```

```
End Sub
```

```
Private Sub Combo3_Click()
```

```
If Optfr2.Value = True Then
```

```
    Call cavnum3
```

```
    Call Optf2                  :
```

```
Else
```

```
    Call cavnum3
```

```
    Call fratiofun
```

```
    Call Optf2
```

```
End If
```

```
End Sub
```

```
Private Sub cavnum3()  
If slide = 1 Then  
Select Case Combo3.ListIndex  
Case 0  
cavnum_input.Text = "1"  
cavnum2 = 1  
x1betcav_input.Enabled = False  
x2betcav_input.Enabled = False  
y1betcav_input.Enabled = False  
y2betcav_input.Enabled = False  
Picture1.Visible = True  
Picture2.Visible = False  
Picture3.Visible = False  
Picture4.Visible = False  
Picture5.Visible = False  
Picture6.Visible = False  
Picture7.Visible = False  
Picture8.Visible = False  
Picture9.Visible = False  
Case 1  
cavnum_input.Text = "2X"  
cavnum2 = 2  
x1betcav_input.Enabled = True  
x2betcav_input.Enabled = False  
y1betcav_input.Enabled = False  
y2betcav_input.Enabled = False  
Picture1.Visible = False  
Picture2.Visible = True  
Picture3.Visible = False  
Picture4.Visible = False  
Picture5.Visible = False  
Picture6.Visible = False
```

Picture7.Visible = False

Picture8.Visible = False

Picture9.Visible = False

Case 2

cavnum_input.Text = "2Y"

cavnum2 = 2

x1betcav_input.Enabled = False

x2betcav_input.Enabled = False

y1betcav_input.Enabled = True

y2betcav_input.Enabled = False

Picture1.Visible = False

Picture2.Visible = False

Picture3.Visible = True

Picture4.Visible = False

Picture5.Visible = False

Picture6.Visible = False

Picture7.Visible = False

Picture8.Visible = False

Picture9.Visible = False

Case 3

cavnum_input.Text = "4"

cavnum2 = 4

x1betcav_input.Enabled = True

x2betcav_input.Enabled = False

y1betcav_input.Enabled = True:

y2betcav_input.Enabled = False

Picture1.Visible = False

Picture2.Visible = False

Picture3.Visible = False

Picture4.Visible = True

Picture5.Visible = False

Picture6.Visible = False

Picture7.Visible = False

Picture8.Visible = False

Picture9.Visible = False

Case 4

cavnum_input.Text = "4X"

cavnum2 = 4

x1betcav_input.Enabled = True

x2betcav_input.Enabled = True

y1betcav_input.Enabled = True

y2betcav_input.Enabled = False

Picture1.Visible = False

Picture2.Visible = False

Picture3.Visible = False

Picture4.Visible = False

Picture5.Visible = True

Picture6.Visible = False

Picture7.Visible = False

Picture8.Visible = False

Picture9.Visible = False

Case 5

cavnum_input.Text = "4Y"

cavnum2 = 4

x1betcav_input.Enabled = True

x2betcav_input.Enabled = False

y1betcav_input.Enabled = True

y2betcav_input.Enabled = True

Picture1.Visible = False

Picture2.Visible = False

Picture3.Visible = False

Picture4.Visible = False

Picture5.Visible = False

Picture6.Visible = True



Picture7.Visible = False

Picture8.Visible = False

Picture9.Visible = False

Case 6

cavnum_input.Text = "8X"

cavnum2 = 8

x1betcav_input.Enabled = True

x2betcav_input.Enabled = True

y1betcav_input.Enabled = True

y2betcav_input.Enabled = False

Picture1.Visible = False

Picture2.Visible = False

Picture3.Visible = False

Picture4.Visible = False

Picture5.Visible = False

Picture6.Visible = False

Picture7.Visible = True

Picture8.Visible = False

Picture9.Visible = False

Case 7

cavnum_input.Text = "8Y"

cavnum2 = 8

x1betcav_input.Enabled = True

x2betcav_input.Enabled = False

y1betcav_input.Enabled = True

y2betcav_input.Enabled = True

Picture1.Visible = False

Picture2.Visible = False

Picture3.Visible = False

Picture4.Visible = False

Picture5.Visible = False

Picture6.Visible = False

Picture7.Visible = False

Picture8.Visible = True

Picture9.Visible = False

Case 8

cavnum_input.Text = "16"

cavnum2 = 16

x1betcav_input.Enabled = True

x2betcav_input.Enabled = True

y1betcav_input.Enabled = True

y2betcav_input.Enabled = True

Picture1.Visible = False

Picture2.Visible = False

Picture3.Visible = False

Picture4.Visible = False

Picture5.Visible = False

Picture6.Visible = False

Picture7.Visible = False

Picture8.Visible = False

Picture9.Visible = True

End Select

ElseIf slide = 2 Then

Select Case Combo3.ListIndex

Case 0

cavnum_input.Text = "1" :

cavnum2 = 1

x1betcav_input.Enabled = False

x2betcav_input.Enabled = False

y1betcav_input.Enabled = False

y2betcav_input.Enabled = False

Picture1.Visible = True

Picture2.Visible = False

Picture3.Visible = False

Picture4.Visible = False

Picture5.Visible = False

Picture6.Visible = False

Picture7.Visible = False

Picture8.Visible = False

Picture9.Visible = False

Case 1

cavnum_input.Text = "2Y"

cavnum2 = 2

x1betcav_input.Enabled = False

x2betcav_input.Enabled = False

y1betcav_input.Enabled = True

y2betcav_input.Enabled = False

Picture1.Visible = False

Picture2.Visible = False

Picture3.Visible = True

Picture4.Visible = False

Picture5.Visible = False

Picture6.Visible = False

Picture7.Visible = False

Picture8.Visible = False

Picture9.Visible = False

Case 2

cavnum_input.Text = "4Y" :

cavnum2 = 4

x1betcav_input.Enabled = True

x2betcav_input.Enabled = False

y1betcav_input.Enabled = True

y2betcav_input.Enabled = True

Picture1.Visible = False

Picture2.Visible = False

```
Picture3.Visible = False
Picture4.Visible = False
Picture5.Visible = False
Picture6.Visible = True
Picture7.Visible = False
Picture8.Visible = False
Picture9.Visible = False
End Select
End If
End Sub

Private Sub optegate_Click()
    If optegate.Value = True Then
        optsgate.Value = False
    ElseIf optegate.Value = False Then
        optsgate.Value = True
    End If
End Sub

Private Sub optm_Click()
    Call optf
End Sub

Private Sub Optp1_Click()
    Optfr1.Value = False
    Optfr2.Value = False
    Optfr1.Enabled = False
    Optfr2.Enabled = False
    Fratio_text.Enabled = False
    Call Optf2
End Sub

Private Sub Optp2_Click()
    Optfr1.Value = True
    Optfr2.Value = False
    Optfr1.Enabled = True
```

```
Optfr2.Enabled = True
Fratio_text.Enabled = True
Call cavnum3
Call fratiofun
Call Optf2
End Sub
Private Sub optpre_Click()
    Call optf
End Sub
Private Sub optsd_Click()
    Call optf
End Sub
Private Sub optsgate_Click()
    If optsgate.Value = True Then
        optegate.Value = False
    ElseIf optsgate.Value = False Then
        optegate.Value = True
    End If
End Sub
Private Sub Optf2()
    Dim pp As Single
    If Optp1.Value = True Then
        Opt2.Value = False
        Frame6.Visible = False
    Select Case Combo1.ListIndex:
    Case 0
        'Me.Label1.Caption = "PS"
        Me.pressure.Text = "207"
        pmaterial = "PS"
    Case 1
        'Me.Label1.Caption = "ABS"
        Me.pressure.Text = "336"
```

pmaterial = "ABS"

Case 2

'Me.Label1.Caption = "PE"

Me.pressure.Text = "351"

pmaterial = "PE"

Case 3

'Me.Label1.Caption = "PP"

Me.pressure.Text = "210"

pmaterial = "PP"

Case 4

'Me.Label1.Caption = "PA"

Me.pressure.Text = "302"

pmaterial = "PA"

Case 5

'Me.Label1.Caption = "PC"

Me.pressure.Text = "571"

pmaterial = "PC"

Case 6

'Me.Label1.Caption = "POM"

Me.pressure.Text = "366"

pmaterial = "POM"

End Select

ElseIf Optp2.Value = True Then

 Optp1.Value = False

 Frame6.Visible = True

 If Optfr1.Value = True Then

 Optfr2.Value = False

 Fratio_text.Enabled = False

 Call fratiofun2

 ElseIf Optfr2.Value = True Then

 Optfr1.Value = False

 Fratio_text.Enabled = True

```

    fratio = Fratio_text.Text
    Call fratiofun2
End If
End If
End Sub
Private Sub fratiofun()
    Select Case cavnum_input.Text
    Case "1"
        fratio = (((xlength) ^ 2 + (ylength) ^ 2) ^ (1 / 2) + hlength) / (tlength / 10)
    Case "2X"
        fratio = (((xlength) ^ 2 + (ylength / 2) ^ 2) ^ (1 / 2) + hlength) / (tlength / 10)
    Case "4X"
        fratio = (((xlength) ^ 2 + (ylength / 2) ^ 2) ^ (1 / 2) + hlength) / (tlength / 10)
    Case "8X"
        fratio = (((xlength) ^ 2 + (ylength / 2) ^ 2) ^ (1 / 2) + hlength) / (tlength / 10)
    Case "2Y"
        fratio = (((xlength / 2) ^ 2 + (ylength) ^ 2) ^ (1 / 2) + hlength) / (tlength / 10)
    Case "4"
        fratio = (((xlength / 2) ^ 2 + (ylength) ^ 2) ^ (1 / 2) + hlength) / (tlength / 10)
    Case "4Y"
        fratio = (((xlength / 2) ^ 2 + (ylength) ^ 2) ^ (1 / 2) + hlength) / (tlength / 10)
    Case "8Y"
        fratio = (((xlength / 2) ^ 2 + (ylength) ^ 2) ^ (1 / 2) + hlength) / (tlength / 10)
    Case "16"
        fratio = (((xlength / 2) ^ 2 + (ylength) ^ 2) ^ (1 / 2) + hlength) / (tlength / 10)
    End Select
    Fratio_text.Text = fratio
End Sub
Private Sub fratiofun2()
    If tlength > 0 And tlength <= 1 Then
        If fratio > 0 And fratio <= 25 Then
            pp = 0.72 * fratio
        End If
    End If
End Sub

```

```
ElseIf fratio > 25 And fratio <= 50 Then
    pp = 0.52 * fratio + 5
ElseIf fratio > 50 And fratio <= 75 Then
    pp = 0.36 * fratio + 13
ElseIf fratio > 75 And fratio <= 100 Then
    pp = 0.32 * fratio + 16
ElseIf fratio > 100 And fratio <= 125 Then
    pp = 0.48 * fratio
ElseIf fratio > 125 Then
    pp = 0.6 * fratio - 15
End If

ElseIf tlength > 1 And tlength <= 1.5 Then
    If fratio > 0 And fratio <= 25 Then
        pp = 0.48 * fratio
    ElseIf fratio > 25 And fratio <= 50 Then
        pp = 0.36 * fratio + 3
    ElseIf fratio > 50 And fratio <= 75 Then
        pp = 0.24 * fratio + 9
    ElseIf fratio > 75 And fratio <= 100 Then
        pp = 0.2 * fratio + 12
    ElseIf fratio > 100 And fratio <= 125 Then
        pp = 0.44 * fratio - 12
    ElseIf fratio > 125 And fratio <= 150 Then
        pp = 0.52 * fratio - 22
    ElseIf fratio > 150 And fratio <= 175 Then
        pp = 0.56 * fratio - 28
    ElseIf fratio > 175 Then
        pp = 0.667 * fratio - 46.725
    End If
ElseIf tlength > 1.5 And tlength <= 2 Then
    If fratio > 0 And fratio <= 25 Then
        pp = 0.4 * fratio
```

```
ElseIf fratio > 25 And fratio <= 50 Then
    pp = 0.28 * fratio + 3
ElseIf fratio > 50 And fratio <= 75 Then
    pp = 0.2 * fratio + 7
ElseIf fratio > 75 And fratio <= 100 Then
    pp = 0.12 * fratio + 13
ElseIf fratio > 100 And fratio <= 125 Then
    pp = 0.28 * fratio - 3
ElseIf fratio > 125 And fratio <= 150 Then
    pp = 0.36 * fratio - 9
ElseIf fratio > 150 And fratio <= 175 Then
    pp = 0.52 * fratio - 37
ElseIf fratio > 175 Then
    pp = 0.4 * fratio - 16
End If

ElseIf tlength > 2 And tlength <= 2.5 Then
    If fratio > 0 And fratio <= 25 Then
        pp = 0.4 * fratio
    ElseIf fratio > 25 And fratio <= 50 Then
        pp = 0.24 * fratio + 4
    ElseIf fratio > 50 And fratio <= 75 Then
        pp = 0.12 * fratio + 10
    ElseIf fratio > 75 And fratio <= 100 Then
        pp = 0.12 * fratio + 10
    ElseIf fratio > 100 And fratio <= 125 Then
        pp = 0.16 * fratio + 6
    ElseIf fratio > 125 And fratio <= 150 Then
        pp = 0.24 * fratio - 4
    ElseIf fratio > 150 And fratio <= 175 Then
        pp = 0.32 * fratio - 16
    ElseIf fratio > 175 Then
        pp = 0.32 * fratio - 24
```

```
End If
ElseIf tlength > 2.5 And tlength <= 3 Then
  If fratio > 0 And fratio <= 25 Then
    pp = 0.4 * fratio
  ElseIf fratio > 25 And fratio <= 50 Then
    pp = 0.2 * fratio + 5
  ElseIf fratio > 50 And fratio <= 75 Then
    pp = 0.08 * fratio + 11
  ElseIf fratio > 75 And fratio <= 100 Then
    pp = 0.08 * fratio + 11
  ElseIf fratio > 100 And fratio <= 125 Then
    pp = 0.12 * fratio + 7
  ElseIf fratio > 125 And fratio <= 150 Then
    pp = 0.2 * fratio - 3
  ElseIf fratio > 150 And fratio <= 175 Then
    pp = 0.24 * fratio - 9
  ElseIf fratio > 175 Then
    pp = 0.2 * fratio - 2
  End If
ElseIf tlength > 3 And tlength <= 3.5 Then
  If fratio > 0 And fratio <= 25 Then
    pp = 0.4 * fratio
  ElseIf fratio > 25 And fratio <= 50 Then
    pp = 0.2 * fratio + 5
  ElseIf fratio > 50 And fratio <= 75 Then
    pp = 0.08 * fratio + 11
  ElseIf fratio > 75 And fratio <= 100 Then
    pp = 0.04 * fratio + 14
  ElseIf fratio > 100 And fratio <= 125 Then
    pp = 0.08 * fratio + 10
  ElseIf fratio > 125 And fratio <= 150 Then
    pp = 0.2 * fratio - 5
```

```

ElseIf fratio > 150 And fratio <= 175 Then
    pp = 0.12 * fratio + 7
ElseIf fratio > 175 Then
    pp = 0.12 * fratio
End If
End If
Select Case pmaterial
    Case "PS"
        pp = pp * 1
    Case "ABS"
        pp = pp * 1.35
    Case "PE"
        pp = pp * 1
    Case "PP"
        pp = pp * 1
    Case "PA"
        pp = pp * 1.3
    Case "POM"
        pp = pp * 1.4
    Case "PC"
        pp = pp * 1.85
End Select
pp = pp * 10.19716
pp = Round(pp, 3)
pressure.Text = pp
End Sub
Private Sub Optfr1_Click()
    Call cavnum3
    Call fratiofun
    Call Optf2
End Sub
Private Sub Optfr2_Click()

```

```

Call cavnum3
Call fratiofun
Call Optf2
End Sub
Private Sub Fratio_text_Change()
    Call cavnum3
    Call Optf2
End Sub

```

สำหรับ Form 6 มี Code ดังนี้

```

Function FFF(sss As Double, ppp As Double, LLL As Double, eee As Double, hhh As Double) As
Double
    FFF = (((12 * ppp * LLL ^ 4) / (384 * eee * sss ^ 3)) + ((ppp * hhh ^ 2 * 2.66) / (8 * eee * sss))) *
AA * BB * 1.3
End Function

Function DS10A(G As Single) As Single
    DS10A = (G + 580.9) / 224.72
End Function

Function DS15A(G As Single) As Single
    DS15A = (G + 622) / 200
End Function

Function DS20A(G As Single) As Single
    DS20A = (G + 707.84) / 196.08
End Function

Function DS25A(G As Single) As Single
    DS25A = (G + 844.33) / 206.18
End Function

Function DS30A(G As Single) As Single
    DS30A = (G + 1104.82) / 240.96
End Function

Function DS35A(G As Single) As Single

```

```

    DS35A = (G + 1353.33) / 266.67
End Function
Function DS40A(G As Single) As Single
    DS40A = (G + 1635.29) / 294.12
End Function
Function DS45A(G As Single) As Single
    DS45A = (G + 2164.28) / 357.14
End Function
Function DS50A(G As Single) As Single
    DS50A = (G + 2729.17) / 416.67
End Function
Function DS10B(G As Single) As Single
    DS10B = (G + 990.32) / 322.58
End Function
Function DS20B(G As Single) As Single
    DS20B = (G + 1419.3) / 350.88
End Function
Function DS30B(G As Single) As Single
    DS30B = (G + 1353.33) / 266.67
End Function
Function DS40B(G As Single) As Single
    DS40B = (G + 2209.09) / 363.64
End Function
Function DS50B(G As Single) As Single
    DS50B = (G + 3500) / 500
End Function
Private Sub Command1_Click()
    Dim l As Double 'X part Distance
    Dim Y As Double 'Y part Distance
    Dim ld As Double 'X part Distance
    Dim Yd As Double 'Y part Distance
    Dim hf As Double 'h fixside Distance

```

Dim hm As Double 'h moveside Distance

Dim ll As Double

Dim YY As Double

Dim x1 As Single

Dim x2 As Single

Dim y1 As Single

Dim y2 As Singl

Dim ffx As Double

Dim ffy As Double

Dim mfx As Double

Dim mfy As Double

Dim m As Double

Dim D As Double

Dim xymold As String

Dim xxmold As Double

Dim yymold As Double

Dim Tmold As Single

Dim xmoldst As String

Dim ymoldst As String

Dim tmoldst As String

Dim Dupper As Single

Dim Dlower As Single

Dim DR As Single 'Dia runner

Dim DR2 As Single 'Dia runner2

Dim DR3 As Single 'Dia runner3

Dim DR4 As Single 'Dia runner4

Dim cf As Single 'clamp force

Dim Ai As Single 'insert cavity area

Dim Af As Single 'shuff off area

Dim Ac As Single 'area all cavity

Dim Am As Single 'area mold strength

Dim Sf As Single 'fatigue strength

```
Dim Fxact As Single
Dim Fyact As Single
Dim sx As Single
Dim sy As Single
Dim hx As Single
Dim hy As Single
Dim lx As Single
Dim ly As Single
Dim hh As Double
hf = hcavilength
hm = hcorelength
l = xlength
Y = ylength
ld = xdlength
Yd = ydlength
x1 = x1betcav
x2 = x2betcav
y1 = y1betcav
y2 = y2betcav
On Error GoTo Errorshow
    If cavnum = "1" Then
        AA = 1
    Else
        AA = 1.2
    End If
    If section = "secs" Then
        BB = 1
    ElseIf section = "secc" Then
        BB = 0.65
    ElseIf section = "seco" Then
        If lratio > 0.65 Then
            BB = lratio
```

```

ElseIf lratio <= 0.65 Then
    BB = 0.65
End If
End If
'Cal Sx fixsize
Dim ss As Double
ppp = p
eee = e
LLL = Yd
hhh = hf
ss = 10
Do Until FFF(ss, p, Yd, e, hf) <= f
ss = ss + 10
Loop
ss = ss - 10 + 1
Do Until FFF(ss, p, Yd, e, hf) <= f
ss = ss + 1
Loop
ss = ss - 1 + 0.1
Do Until FFF(ss, p, Yd, e, hf) <= f
ss = ss + 0.1
Loop
ss = ss - 0.1 + 0.01
Do Until FFF(ss, p, Yd, e, hf) <= f
ss = ss + 0.01
Loop
ss = ss - 0.01 + 0.001
Do Until FFF(ss, p, Yd, e, hf) <= f
ss = ss + 0.001
Loop
ss = ss - 0.001 + 0.0001
Do Until FFF(ss, p, Yd, e, hf) <= f

```

```

ss = ss + 0.0001
Loop
ss = ss - 0.0001 + 0.00001
Do Until FFF(ss, p, Yd, e, hf) <= f
ss = ss + 0.00001
Loop
ss = ss - 0.0001 + 0.00001
Do Until FFF(ss, p, Yd, e, hf) <= f
ss = ss + 0.00001
Loop
If ss < hf * 1 Then
  ss = hf * 1
End If
sxf.Text = ss
'Cal Sy fixsize
ppp = p
eee = e
LLL = ld
hhh = hf
ss = 10
Do Until FFF(ss, p, ld, e, hf) <= f
ss = ss + 10
Loop
ss = ss - 10 + 1
Do Until FFF(ss, p, ld, e, hf) <= f
ss = ss + 1
Loop
ss = ss - 1 + 0.1
Do Until FFF(ss, p, ld, e, hf) <= f
ss = ss + 0.1
Loop
ss = ss - 0.1 + 0.01

```

```

Do Until FFF(ss, p, ld, e, hf) <= f
ss = ss + 0.01
Loop
ss = ss - 0.01 + 0.001
Do Until FFF(ss, p, ld, e, hf) <= f
ss = ss + 0.001
Loop
ss = ss - 0.001 + 0.0001
Do Until FFF(ss, p, ld, e, hf) <= f
ss = ss + 0.0001
Loop
ss = ss - 0.0001 + 0.00001
Do Until FFF(ss, p, ld, e, hf) <= f
ss = ss + 0.00001
Loop
ss = ss - 0.0001 + 0.00001
Do Until FFF(ss, p, ld, e, hf) <= f
ss = ss + 0.00001
Loop
If ss < hf * 1 Then
    ss = hf * 1
End If
syf.Text = ss
'Cal Sx movesize
ppp = p
eee = e
LLL = Yd
hhh = hm
ss = 10
Do Until FFF(ss, p, Yd, e, hm) <= f
ss = ss + 10
Loop

```

```

ss = ss - 10 + 1
Do Until FFF(ss, p, Yd, e, hm) <= f
ss = ss + 1
Loop
ss = ss - 1 + 0.1
Do Until FFF(ss, p, Yd, e, hm) <= f
ss = ss + 0.1
Loop
ss = ss - 0.1 + 0.01
Do Until FFF(ss, p, Yd, e, hm) <= f
ss = ss + 0.01
Loop
ss = ss - 0.01 + 0.001
Do Until FFF(ss, p, Yd, e, hm) <= f
ss = ss + 0.001
Loop
ss = ss - 0.001 + 0.0001
Do Until FFF(ss, p, Yd, e, hm) <= f
ss = ss + 0.0001
Loop
ss = ss - 0.0001 + 0.00001
Do Until FFF(ss, p, Yd, e, hm) <= f
ss = ss + 0.00001
Loop
ss = ss - 0.0001 + 0.00001
Do Until FFF(ss, p, Yd, e, hm) <= f
ss = ss + 0.00001
Loop
If ss < hf * 1 Then
    ss = hf * 1
End If
sxm.Text = ss

```



'Cal Sy movesize

ppp = p

eee = e

LLL = ld

hhh = hm

ss = 10

Do Until FFF(ss, p, ld, e, hm) <= f

ss = ss + 10

Loop

ss = ss - 10 + 1

Do Until FFF(ss, p, ld, e, hm) <= f

ss = ss + 1

Loop

ss = ss - 1 + 0.1

Do Until FFF(ss, p, ld, e, hm) <= f

ss = ss + 0.1

Loop

ss = ss - 0.1 + 0.01

Do Until FFF(ss, p, ld, e, hm) <= f

ss = ss + 0.01

Loop

ss = ss - 0.01 + 0.001

Do Until FFF(ss, p, ld, e, hm) <= f

ss = ss + 0.001

Loop :

ss = ss - 0.001 + 0.0001

Do Until FFF(ss, p, ld, e, hm) <= f

ss = ss + 0.0001

Loop

ss = ss - 0.0001 + 0.00001

Do Until FFF(ss, p, ld, e, hm) <= f

ss = ss + 0.00001

Loop

ss = ss - 0.0001 + 0.00001

Do Until FFF(ss, p, ld, e, hm) <= f

ss = ss + 0.00001

Loop

If ss < hf * 1 Then

ss = hf * 1

End If

sym.Text = ss

If slide = 1 Then '(futaba moldbase)

'xmold.Text

If sxf >= sxm Then

Select Case cavnum

Case "1"

ll = (2 * sxf) + 1

Case "2X"

ll = (2 * sxf) + (2 * 1) + x1

Case "2Y"

ll = (2 * sxf) + 1

Case "4"

ll = (2 * sxf) + (2 * 1) + x1

Case "4X"

ll = (2 * sxf) + (4 * 1) + x1 + (2 * x2)

Case "4Y"

ll = (2 * sxf) + 1

Case "8X"

ll = (2 * sxf) + (4 * 1) + x1 + (2 * x2)

Case "8Y"

ll = (2 * sxf) + (2 * 1) + x1

Case "16"

ll = (2 * sxf) + (4 * 1) + x1 + (2 * x2)

End Select

```

xmold.Text = ll '(cm.)
xmoldcal.Text = ll * 10 '(mm.)
Else
  Select Case cavnum
  Case "1"
    ll = (2 * sxm) + 1
  Case "2X"
    ll = (2 * sxm) + (2 * l) + x1
  Case "2Y"
    ll = (2 * sxm) + 1
  Case "4"
    ll = (2 * sxm) + (2 * l) + x1
  Case "4X"
    ll = (2 * sxm) + (4 * l) + x1 + (2 * x2)
  Case "4Y"
    ll = (2 * sxm) + 1
  Case "8X"
    ll = (2 * sxm) + (4 * l) + x1 + (2 * x2)
  Case "8Y"
    ll = (2 * sxm) + (2 * l) + x1
  Case "16"
    ll = (2 * sxm) + (4 * l) + x1 + (2 * x2)
  End Select
xmold.Text = ll '(cm.)
xmoldcal.Text = ll * 10 '(mm.)
End If
'ymold.Text
If syf >= sym Then
  Select Case cavnum
  Case "1"
    YY = (2 * syf) + Y
  Case "2X"

```

$$YY = (2 * syf) + Y$$

Case "2Y"

$$YY = (2 * syf) + (2 * Y) + y1$$

Case "4"

$$YY = (2 * syf) + (2 * Y) + y1$$

Case "4X"

$$YY = (2 * syf) + Y$$

Case "4Y"

$$YY = (2 * syf) + (4 * Y) + y1 + (2 * y2)$$

Case "8X"

$$YY = (2 * syf) + (2 * Y) + y1$$

Case "8Y"

$$YY = (2 * syf) + (4 * Y) + y1 + (2 * y2)$$

Case "16"

$$YY = (2 * syf) + (4 * Y) + y1 + (2 * y2)$$

End Select

ymold.Text = YY '(cm.)

ymoldcal.Text = YY * 10 '(mm.)

Else

Select Case cavnum

Case "1"

$$YY = (2 * sym) + Y$$

Case "2X"

$$YY = (2 * sym) + Y$$

Case "2Y"

$$YY = (2 * sym) + (2 * Y) + y1$$

Case "4"

$$YY = (2 * sym) + (2 * Y) + y1$$

Case "4X"

$$YY = (2 * sym) + Y$$

Case "4Y"

$$YY = (2 * sym) + (4 * Y) + y1 + (2 * y2)$$

Case "8X"

$$YY = (2 * sym) + (2 * Y) + y1$$

Case "8Y"

$$YY = (2 * sym) + (4 * Y) + y1 + (2 * y2)$$

Case "16"

$$YY = (2 * sym) + (4 * Y) + y1 + (2 * y2)$$

End Select

ymold.Text = YY '(cm.)

ymoldcal.Text = YY * 10 '(mm.)

End If

xxmold = xmold.Text '(cm.)

yymold = ymold.Text '(cm.)

If xxmold <= 15 And yy mold <= 30 Then

xxmold = 15

If yy mold <= 15 Then

yy mold = 15

ElseIf yy mold > 15 And yy mold <= 18 Then

yy mold = 18

ElseIf yy mold > 18 And yy mold <= 20 Then

yy mold = 20

ElseIf yy mold > 20 And yy mold <= 23 Then

yy mold = 23

ElseIf yy mold > 23 And yy mold <= 25 Then

yy mold = 25

ElseIf yy mold > 25 And yy mold <= 30 Then

yy mold = 30

End If

ElseIf xxmold <= 18 And yy mold <= 35 Then

xxmold = 18

If yy mold <= 20 Then

yy mold = 20

ElseIf yy mold > 20 And yy mold <= 23 Then

```

yymold = 23
ElseIf yymold > 23 And yymold <= 25 Then
yymold = 25
ElseIf yymold > 25 And yymold <= 30 Then
yymold = 30
ElseIf yymold > 30 And yymold <= 35 Then
yymold = 35
End If
ElseIf xxmold <= 20 And yymold <= 45 Then
xxmold = 20
  If yymold <= 20 Then
    yymold = 20
  ElseIf yymold > 20 And yymold <= 23 Then
    yymold = 23
  ElseIf yymold > 23 And yymold <= 25 Then
    yymold = 25
  ElseIf yymold > 25 And yymold <= 30 Then
    yymold = 30
  ElseIf yymold > 30 And yymold <= 35 Then
    yymold = 35
  ElseIf yymold > 35 And yymold <= 40 Then
    yymold = 40
  ElseIf yymold > 40 And yymold <= 45 Then
    yymold = 45
  End If
ElseIf xxmold <= 23 And yymold <= 40 Then
xxmold = 23
  If yymold <= 23 Then
    yymold = 23
  ElseIf yymold > 23 And yymold <= 25 Then
    yymold = 25
  ElseIf yymold > 25 And yymold <= 27 Then

```

```
yymold = 27
ElseIf yymold > 27 And yymold <= 30 Then
yymold = 30
ElseIf yymold > 30 And yymold <= 35 Then
yymold = 35
ElseIf yymold > 35 And yymold <= 40 Then
yymold = 40
End If
ElseIf xxmold <= 25 And yymold <= 50 Then
xxmold = 25
    If yymold <= 25 Then
        yymold = 25
    ElseIf yymold > 25 And yymold <= 27 Then
        yymold = 27
    ElseIf yymold > 27 And yymold <= 30 Then
        yymold = 30
    ElseIf yymold > 30 And yymold <= 35 Then
        yymold = 35
    ElseIf yymold > 35 And yymold <= 40 Then
        yymold = 40
    ElseIf yymold > 40 And yymold <= 45 Then
        yymold = 45
    ElseIf yymold > 45 And yymold <= 50 Then
        yymold = 50
    End If
ElseIf xxmold <= 27 And yymold <= 40 Then
xxmold = 27
    If yymold <= 30 Then
        yymold = 30
    ElseIf yymold > 30 And yymold <= 35 Then
        yymold = 35
    ElseIf yymold > 35 And yymold <= 40 Then
```

```
yymold = 40
End If
ElseIf xxmold <= 30 And yymold <= 55 Then
xxmold = 30
  If yymold <= 30 Then
    yymold = 30
  ElseIf yymold > 30 And yymold <= 35 Then
    yymold = 35
  ElseIf yymold > 35 And yymold <= 40 Then
    yymold = 40
  ElseIf yymold > 40 And yymold <= 45 Then
    yymold = 45
  ElseIf yymold > 45 And yymold <= 50 Then
    yymold = 50
  ElseIf yymold > 50 And yymold <= 55 Then
    yymold = 55
  End If
ElseIf xxmold <= 35 And yymold <= 60 Then
xxmold = 35
  If yymold <= 35 Then
    yymold = 35
  ElseIf yymold > 35 And yymold <= 40 Then
    yymold = 40
  ElseIf yymold > 40 And yymold <= 45 Then
    yymold = 45
  ElseIf yymold > 45 And yymold <= 50 Then
    yymold = 50
  ElseIf yymold > 50 And yymold <= 55 Then
    yymold = 55
  ElseIf yymold > 55 And yymold <= 60 Then
    yymold = 60
  End If
```

ElseIf xxmold <= 40 And yymold <= 60 Then

xxmold = 40

 If yymold <= 40 Then

 yy mold = 40

 ElseIf yymold > 40 And yymold <= 45 Then

 yy mold = 45

 ElseIf yymold > 45 And yymold <= 50 Then

 yy mold = 50

 ElseIf yymold > 50 And yymold <= 55 Then

 yy mold = 55

 ElseIf yymold > 55 And yymold <= 60 Then

 yy mold = 60

 End If

ElseIf xxmold <= 45 And yymold <= 60 Then

xxmold = 45

 If yymold <= 45 Then

 yy mold = 45

 ElseIf yymold > 45 And yymold <= 50 Then

 yy mold = 50

 ElseIf yymold > 50 And yymold <= 55 Then

 yy mold = 55

 ElseIf yymold > 55 And yymold <= 60 Then

 yy mold = 60

 End If

ElseIf xxmold <= 50 And yymold <= 70 Then

xxmold = 50

 If yymold <= 50 Then

 yy mold = 50

 ElseIf yymold > 50 And yymold <= 55 Then

 yy mold = 55

 ElseIf yymold > 55 And yymold <= 60 Then

 yy mold = 60

```
ElseIf yymold > 60 And yymold <= 70 Then
    yymold = 70
End If
End If
xmold.Text = xxmold * 10
ymold.Text = yymold * 10
xmoldst = xxmold
ymoldst = yymold
xymold = xmoldst + ymoldst
Text11.Text = xymold
Text1.Text = xxmold
Text2.Text = yymold

Data1.Recordset.Index = "xyind"
Data1.Recordset.Seek "=", Text11.Text
FUTABA.Visible = True
Dim hfhf As Single
hfhf = (hf * 10) + 30
If hfhf <= Amin.Text Then
    hfhf = Amin.Text
End If
If hfhf <= 20 Then
    Acal.Text = 20
ElseIf hfhf <= 25 And hfhf > 20 Then
    Acal.Text = 25
ElseIf hfhf <= 30 And hfhf > 25 Then
    Acal.Text = 30
ElseIf hfhf <= 35 And hfhf > 30 Then
    Acal.Text = 35
ElseIf hfhf <= 40 And hfhf > 35 Then
    Acal.Text = 40
ElseIf hfhf <= 50 And hfhf > 40 Then
```

```
Acal.Text = 50
ElseIf hfhf <= 60 And hfhf > 50 Then
Acal.Text = 60
ElseIf hfhf <= 70 And hfhf > 60 Then
Acal.Text = 70
ElseIf hfhf <= 80 And hfhf > 70 Then
Acal.Text = 80
ElseIf hfhf <= 90 And hfhf > 80 Then
Acal.Text = 90
ElseIf hfhf <= 100 And hfhf > 90 Then
Acal.Text = 100
ElseIf hfhf <= 110 And hfhf > 100 Then
Acal.Text = 110
ElseIf hfhf <= 120 And hfhf > 110 Then
Acal.Text = 120
ElseIf hfhf <= 130 And hfhf > 120 Then
Acal.Text = 130
ElseIf hfhf <= 140 And hfhf > 130 Then
Acal.Text = 140
ElseIf hfhf <= 150 And hfhf > 140 Then
Acal.Text = 150
End If

Dim hmhm As Single
hmhm = (hm * 10) + 30
If hmhm <= Bmin.Text Then
hmhm = Bmin.Text
End If

If hmhm <= 20 Then
Bcal.Text = 20
ElseIf hmhm <= 25 And hmhm > 20 Then
Bcal.Text = 25
ElseIf hmhm <= 30 And hmhm > 25 Then
```

```
Bcal.Text = 30
ElseIf hmhm <= 35 And hmhm > 30 Then
Bcal.Text = 35
ElseIf hmhm <= 40 And hmhm > 35 Then
Bcal.Text = 40
ElseIf hmhm <= 50 And hmhm > 40 Then
Bcal.Text = 50
ElseIf hmhm <= 60 And hmhm > 50 Then
Bcal.Text = 60
ElseIf hmhm <= 70 And hmhm > 60 Then
Bcal.Text = 70
ElseIf hmhm <= 80 And hmhm > 70 Then
Bcal.Text = 80
ElseIf hmhm <= 90 And hmhm > 80 Then
Bcal.Text = 90
ElseIf hmhm <= 100 And hmhm > 90 Then
Bcal.Text = 100
ElseIf hmhm <= 110 And hmhm > 100 Then
Bcal.Text = 110
ElseIf hmhm <= 120 And hmhm > 110 Then
Bcal.Text = 120
ElseIf hmhm <= 130 And hmhm > 120 Then
Bcal.Text = 130
ElseIf hmhm <= 140 And hmhm > 130 Then
Bcal.Text = 140
ElseIf hmhm <= 150 And hmhm > 140 Then
Bcal.Text = 150
End If
Dim CCmold As Single
CCmold = ejeedis + Emold + Fmold
If CCmold <= Cmin.Text Then
CCmold = Cmin.Text
```

```

End If
If CCmold <= 50 Then
Ccal.Text = 50
ElseIf CCmold <= 60 And CCmold > 50 Then
Ccal.Text = 60
ElseIf CCmold <= 70 And CCmold > 60 Then
Ccal.Text = 70
ElseIf CCmold <= 80 And CCmold > 70 Then
Ccal.Text = 80
ElseIf CCmold <= 90 And CCmold > 80 Then
Ccal.Text = 90
ElseIf CCmold <= 100 And CCmold > 90 Then
Ccal.Text = 100
ElseIf CCmold <= 110 And CCmold > 100 Then
Ccal.Text = 110
ElseIf CCmold <= 120 And CCmold > 110 Then
Ccal.Text = 120
ElseIf CCmold <= 130 And CCmold > 120 Then
Ccal.Text = 130
ElseIf CCmold > 130 Then
Ccal.Text = CCmold
End If

'Cal Back Core Plate
Dim W As Single
Dim Lp As Single      :
Dim Dc As Single

W = cavnum2 * 1 * Y * ppp / yymold
Lp = Qmold.Text / 10
Dc = (((W * Lp * Lp * Lp) / (32 * eee * f)) ^ (1 / 3)) * 10
backplatecal.Text = Dc

If Dc < (Umold.Text + (Bcal.Text - hcore)) Then
Ucal.Text = Umold

```

```

Else: Ucal.Text = Round(Dc, 0)
End If
Dim fs As Single
Dim DCact As Single
DCact = (U mold.Text + (Bcal.Text - hcore)) / 10
fs = ((W * Lp * Lp * Lp) / (32 * eee * DCact * DCact * DCact)) * 10
fs_text.Text = fs
fs = ((W * Lp * Lp * Lp) / (32 * eee * Dc * Dc * Dc)) * 10
fscal.Text = fs
ElseIf slide = 2 Then
'xmold.text
Select Case cavnum
Case "1"
ll = (2 * sxf) + 1
Case "2Y"
ll = (2 * sxf) + 1
Case "4Y"
ll = (2 * sxf) + 1
End Select
xmold.Text = ll
xmoldcal.Text = ll
'ymold.Text
Select Case cavnum
Case "1"
YY = (2 * syf) + Yc
Case "2Y"
YY = (2 * syf) + (2 * Y) + y1
Case "4Y"
YY = (2 * syf) + (4 * Y) + y1 + (2 * y2)
End Select
ymold.Text = YY
ymoldcal.Text = YY

```

```
xxmold = xmold.Text
yymold = ymold.Text
Tmold = hm * 10
If xxmold <= 12 And yymold <= 16 And Tmold <= 27 Then
    xxmold = 12
    yymold = 16
    Tmold = 27
ElseIf xxmold <= 12 And yymold <= 16 And Tmold > 27 And Tmold <= 36 Then
    xxmold = 12
    yymold = 16
    Tmold = 36
ElseIf xxmold <= 16 And yymold <= 16 And Tmold <= 27 Then
    xxmold = 16
    yymold = 16
    Tmold = 27
ElseIf xxmold <= 16 And yymold <= 16 And Tmold > 27 And Tmold <= 36 Then
    xxmold = 16
    yymold = 16
    Tmold = 36
ElseIf xxmold <= 16 And yymold <= 20 And Tmold <= 27 Then
    xxmold = 16
    yymold = 20
    Tmold = 27
ElseIf xxmold <= 16 And yymold <= 20 And Tmold > 27 And Tmold <= 36 Then
    xxmold = 16
    yymold = 20
    Tmold = 36
ElseIf xxmold <= 16 And yymold <= 20 And Tmold > 36 And Tmold <= 46 Then
    xxmold = 16
    yymold = 20
    Tmold = 46
ElseIf xxmold <= 20 And yymold <= 20 And Tmold <= 27 Then
```

```
xxmold = 20
yymold = 20
Tmold = 27
ElseIf xxmold <= 20 And yymold <= 20 And Tmold > 27 And Tmold <= 36 Then
    xxmold = 20
    yymold = 20
    Tmold = 36
ElseIf xxmold <= 20 And yymold <= 20 And Tmold > 36 And Tmold <= 46 Then
    xxmold = 20
    yymold = 20
    Tmold = 46
ElseIf xxmold <= 20 And yymold <= 25 And Tmold <= 27 Then
    xxmold = 20
    yymold = 25
    Tmold = 27
ElseIf xxmold <= 20 And yymold <= 25 And Tmold > 27 And Tmold <= 36 Then
    xxmold = 20
    yymold = 25
    Tmold = 36
ElseIf xxmold <= 20 And yymold <= 25 And Tmold > 36 And Tmold <= 46 Then
    xxmold = 20
    yymold = 25
    Tmold = 46
ElseIf xxmold <= 20 And yymold <= 25 And Tmold > 36 And Tmold <= 56 Then
    xxmold = 20
    yymold = 25
    Tmold = 56
ElseIf xxmold <= 25 And yymold <= 25 And Tmold <= 27 Then
    xxmold = 25
    yymold = 25
    Tmold = 27
ElseIf xxmold <= 25 And yymold <= 25 And Tmold > 27 And Tmold <= 36 Then
```

```
xxmold = 25
yymold = 25
Tmold = 36
ElseIf xxmold <= 25 And yymold <= 25 And Tmold > 36 And Tmold <= 46 Then
    xxmold = 25
    yymold = 25
    Tmold = 46
ElseIf xxmold <= 25 And yymold <= 25 And Tmold > 36 And Tmold <= 56 Then
    xxmold = 25
    yymold = 25
    Tmold = 56
ElseIf xxmold <= 25 And yymold <= 30 And Tmold <= 46 Then
    xxmold = 25
    yymold = 30
    Tmold = 46
ElseIf xxmold <= 25 And yymold <= 30 And Tmold > 46 And Tmold <= 56 Then
    xxmold = 25
    yymold = 30
    Tmold = 56
ElseIf xxmold <= 25 And yymold <= 30 And Tmold > 56 And Tmold <= 76 Then
    xxmold = 25
    yymold = 30
    Tmold = 76
ElseIf xxmold <= 25 And yymold <= 30 And Tmold > 76 And Tmold <= 96 Then
    xxmold = 25
    yymold = 30
    Tmold = 96
End If
xmoldst = xxmold
ymoldst = yymold
tmoldst = Tmold
xymold = xmoldst + ymoldst + tmoldst
```

```

Text11.Text = xymold
xmold.Text = xxmold * 10
ymold.Text = yymold * 10
Data2.Recordset.Index = "xytind"
Data2.Recordset.Seek "=", Text11.Text
DME.Visible = True
Label51.Visible = False
Label52.Visible = False
fs_text.Visible = False
End If

'show mold picture-----
    If moldplate = 2 And ejec = 2 And slide = 1 Then
        Picture1.Visible = True
        Picture2.Visible = False
        Picture3.Visible = False
        Picture4.Visible = False
        Picture5.Visible = False
        Picture6.Visible = False
    ElseIf moldplate = 2 And ejec = 1 And slide = 1 Then
        Picture1.Visible = False
        Picture2.Visible = True
        Picture3.Visible = False
        Picture4.Visible = False
        Picture5.Visible = False
        Picture6.Visible = False
    ElseIf moldplate = 1 And ejec = 2 And slide = 1 Then
        Picture1.Visible = False
        Picture2.Visible = False
        Picture3.Visible = True
        Picture4.Visible = False
        Picture5.Visible = False
        Picture6.Visible = False

```

ElseIf moldplate = 1 And ejec = 1 And slide = 1 Then

Picture1.Visible = False

Picture2.Visible = False

Picture3.Visible = False

Picture4.Visible = True

Picture5.Visible = False

Picture6.Visible = False

ElseIf moldplate = 1 And ejec = 1 And slide = 2 Then

Picture1.Visible = False

Picture2.Visible = False

Picture3.Visible = False

Picture4.Visible = False

Picture5.Visible = True

Picture6.Visible = False

ElseIf moldplate = 1 And ejec = 2 And slide = 2 Then

Picture1.Visible = False

Picture2.Visible = False

Picture3.Visible = False

Picture4.Visible = False

Picture5.Visible = False

Picture6.Visible = True

End If

'cal runner diameter-----

If pmaterial = "PS" Or pmaterial = "ABSS" Then

If tlength >= 1 And tlength < 1.5 Then

Dlower = DS10A(pweight)

Dupper = DS15A(pweight)

DR = (((Dupper - Dlower) / (1.5 - 1)) * tlength) + Dlower - (((Dupper - Dlower) / (1.5 - 1)) * 1)

ElseIf tlength >= 1.5 And tlength < 2 Then

Dlower = DS15A(pweight)

Dupper = DS20A(pweight)

DR = (((Dupper - Dlower) / (2 - 1.5)) * tlength) + Dlower - (((Dupper - Dlower) / (2 - 1.5)) * 1.5)

```

ElseIf tlength >= 2 And tlength < 2.5 Then
    Dlower = DS20A(pweight)
    Dupper = DS25A(pweight)
DR = (((Dupper - Dlower) / (2.5 - 2)) * tlength) + Dlower - (((Dupper - Dlower) / (2.5 - 2)) * 2)
ElseIf tlength >= 2.5 And tlength < 3 Then
    Dlower = DS25A(pweight)
    Dupper = DS30A(pweight)
DR = (((Dupper - Dlower) / (3 - 2.5)) * tlength) + Dlower - (((Dupper - Dlower) / (3 - 2.5)) * 2.5)
ElseIf tlength >= 3 And tlength < 3.5 Then
    Dlower = DS30A(pweight)
    Dupper = DS35A(pweight)
DR = (((Dupper - Dlower) / (3.5 - 3)) * tlength) + Dlower - (((Dupper - Dlower) / (3.5 - 3)) * 3)
ElseIf tlength >= 3.5 And tlength < 4 Then
    Dlower = DS35A(pweight)
    Dupper = DS40A(pweight)
DR = (((Dupper - Dlower) / (4 - 3.5)) * tlength) + Dlower - (((Dupper - Dlower) / (4 - 3.5)) * 3.5)
ElseIf tlength >= 4 And tlength < 4.5 Then
    Dlower = DS40A(pweight)
    Dupper = DS45A(pweight)
DR = (((Dupper - Dlower) / (4.5 - 4)) * tlength) + Dlower - (((Dupper - Dlower) / (4.5 - 4)) * 4)
ElseIf tlength >= 4.5 And tlength <= 5 Then
    Dlower = DS45A(pweight)
    Dupper = DS50A(pweight)
DR = (((Dupper - Dlower) / (5 - 4.5)) * tlength) + Dlower - (((Dupper - Dlower) / (5 - 4.5)) * 4.5)
End If
ElseIf pmaterial = "PE" Or pmaterial = "PP" Or pmaterial = "PA" Or pmaterial = "PC" Or pmaterial
= "POM" Then
    If tlength >= 1 And tlength < 2 Then
        Dlower = DS10B(pweight)
        Dupper = DS20B(pweight)
DR = (((Dupper - Dlower) / (2 - 1)) * tlength) + Dlower - (((Dupper - Dlower) / (2 - 1)) * 1)
    ElseIf tlength >= 2 And tlength < 3 Then

```

```

Dlower = DS20B(pweight)
Dupper = DS30B(pweight)
DR = (((Dupper - Dlower) / (3 - 2)) * tlength) + Dlower - (((Dupper - Dlower) / (3 - 2)) * 2)
ElseIf tlength >= 3 And tlength < 4 Then
    Dlower = DS30B(pweight)
    Dupper = DS40B(pweight)
    DR = (((Dupper - Dlower) / (4 - 3)) * tlength) + Dlower - (((Dupper - Dlower) / (4 - 3)) * 3)
ElseIf tlength >= 4 And tlength <= 5 Then
    Dlower = DS40B(pweight)
    Dupper = DS50B(pweight)
    DR = (((Dupper - Dlower) / (5 - 4)) * tlength) + Dlower - (((Dupper - Dlower) / (5 - 4)) * 4)
End If
End If
lrunnerlcav = lrunnerlcav * 10
If lrunnerlcav = 0 Then
    DR = DR
ElseIf lrunnerlcav > 0 And lrunnerlcav <= 50 Then
    DR = DR * 1.05
ElseIf lrunnerlcav > 50 And lrunnerlcav <= 100 Then
    DR = DR * 1.1
ElseIf lrunnerlcav > 100 And lrunnerlcav <= 125 Then
    DR = DR * 1.15
ElseIf lrunnerlcav > 125 And lrunnerlcav <= 150 Then
    DR = DR * 1.2
ElseIf lrunnerlcav > 150 And lrunnerlcav <= 175 Then
    DR = DR * 1.25
ElseIf lrunnerlcav > 175 And lrunnerlcav <= 200 Then
    DR = DR * 1.3
ElseIf lrunnerlcav > 200 And lrunnerlcav <= 225 Then
    DR = DR * 1.35
ElseIf lrunnerlcav > 225 And lrunnerlcav <= 250 Then
    DR = DR * 1.4

```

ElseIf lranner1cav > 250 And lranner1cav <= 275 Then

DR = DR * 1.45

ElseIf lranner1cav > 275 And lranner1cav <= 300 Then

DR = DR * 1.5

End If

If cavnum = "1" Then

runner1.Visible = False

runner2.Visible = False

runner3.Visible = False

runner4.Visible = False

r1.Visible = False

r2.Visible = False

r3.Visible = False

r4.Visible = False

r11.Visible = False

r22.Visible = False

r33.Visible = False

r44.Visible = False

ElseIf cavnum = "2X" Or cavnum = "2Y" Then

runner1.Visible = True

runner2.Visible = False

runner3.Visible = False

runner4.Visible = False

r1.Visible = True

r2.Visible = False

r3.Visible = False

r4.Visible = False

r11.Visible = True

r22.Visible = False

r33.Visible = False

r44.Visible = False

ElseIf cavnum = "4" Or cavnum = "4X" Or cavnum = "4Y" Then



```
runner1.Visible = True
runner2.Visible = True
runner3.Visible = False
runner4.Visible = False
r1.Visible = True
r2.Visible = True
r3.Visible = False
r4.Visible = False
r11.Visible = True
r22.Visible = True
r33.Visible = False
r44.Visible = False
```

```
ElseIf cavnum = "8X" Or cavnum = "8Y" Then
```

```
runner1.Visible = True
runner2.Visible = True
runner3.Visible = True
runner4.Visible = False
r1.Visible = True
r2.Visible = True
r3.Visible = True
r4.Visible = False
r11.Visible = True
r22.Visible = True
r33.Visible = True
r44.Visible = False
```

```
ElseIf cavnum = "16" Then
```

```
runner1.Visible = True
runner2.Visible = True
runner3.Visible = True
runner4.Visible = True
r1.Visible = True
r2.Visible = True
```

```
r3.Visible = True
r4.Visible = True
r11.Visible = True
r22.Visible = True
r33.Visible = True
r44.Visible = True
End If
If cavnum = "1" Then
    pic1.Visible = True
    pic2.Visible = False
    pic3.Visible = False
    pic4.Visible = False
    pic5.Visible = False
    pic6.Visible = False
    pic7.Visible = False
    pic8.Visible = False
    pic9.Visible = False
ElseIf cavnum = "2X" Then
    pic1.Visible = False
    pic2.Visible = True
    pic3.Visible = False
    pic4.Visible = False
    pic5.Visible = False
    pic6.Visible = False
    pic7.Visible = False
    pic8.Visible = False
    pic9.Visible = False
ElseIf cavnum = "2Y" Then
    pic1.Visible = False
    pic2.Visible = False
    pic3.Visible = True
    pic4.Visible = False
```

pic5.Visible = False

pic6.Visible = False

pic7.Visible = False

pic8.Visible = False

pic9.Visible = False

ElseIf cavnum = "4" Then

pic1.Visible = False

pic2.Visible = False

pic3.Visible = False

pic4.Visible = True

pic5.Visible = False

pic6.Visible = False

pic7.Visible = False

pic8.Visible = False

pic9.Visible = False

ElseIf cavnum = "4X" Then

pic1.Visible = False

pic2.Visible = False

pic3.Visible = False

pic4.Visible = False

pic5.Visible = True

pic6.Visible = False

pic7.Visible = False

pic8.Visible = False

pic9.Visible = False :

ElseIf cavnum = "4Y" Then

pic1.Visible = False

pic2.Visible = False

pic3.Visible = False

pic4.Visible = False

pic5.Visible = False

pic6.Visible = True

```
pic7.Visible = False
pic8.Visible = False
pic9.Visible = False
ElseIf cavnum = "8X" Then
    pic1.Visible = False
    pic2.Visible = False
    pic3.Visible = False
    pic4.Visible = False
    pic5.Visible = False
    pic6.Visible = False
    pic7.Visible = True
    pic8.Visible = False
    pic9.Visible = False
ElseIf cavnum = "8Y" Then
    pic1.Visible = False
    pic2.Visible = False
    pic3.Visible = False
    pic4.Visible = False
    pic5.Visible = False
    pic6.Visible = False
    pic7.Visible = False
    pic8.Visible = True
    pic9.Visible = False
ElseIf cavnum = "16" Then
    pic1.Visible = False
    pic2.Visible = False
    pic3.Visible = False
    pic4.Visible = False
    pic5.Visible = False
    pic6.Visible = False
    pic7.Visible = False
    pic8.Visible = False
```

```

pic9.Visible = True
End If
DR2 = DR * 2 ^ (1 / 3)
DR3 = DR2 * 2 ^ (1 / 3)
DR4 = DR3 * 2 ^ (1 / 3)
runner1.Text = Round(DR, 2)
runner2.Text = Round(DR2, 2)
runner3.Text = Round(DR3, 2)
runner4.Text = Round(DR4, 2)
'cal Gate size-----
If gatestr = "Egate" Then
  If pweight > 0 And pweight < 5 Then
    Gate1.Text = "H = 0.25 mm"
    Gate2.Text = "W = 0.75 mm"
    Gate3.Text = "Land = 0.5-0.8 mm"
  ElseIf pweight >= 5 And pweight < 40 Then
    Gate1.Text = "H = 0.50 mm"
    Gate2.Text = "W = 1.50 mm"
    Gate3.Text = "Land = 0.5-0.8 mm"
  ElseIf pweight >= 40 And pweight < 200 Then
    Gate1.Text = "H = 0.75 mm"
    Gate2.Text = "W = 2.25 mm"
    Gate3.Text = "Land = 1.0-2.0 mm"
  ElseIf pweight >= 200 Then
    Gate1.Text = "H = 1.00 mm"
    Gate2.Text = "W = 3.00 mm"
    Gate3.Text = "Land = 1.0-2.0 mm"
  End If
picedgegate.Visible = True
picsubgate.Visible = False
picpingate.Visible = False
End If

```

```
If gatestr = "Sgate" Then
  If pweight > 0 And pweight < 5 Then
    Gate1.Text = "D = 0.50 mm"
    Gate2.Visible = False
    Gate3.Visible = False
  ElseIf pweight >= 5 And pweight < 10 Then
    Gate1.Text = "D = 0.62 mm"
    Gate2.Visible = False
    Gate3.Visible = False
  ElseIf pweight >= 10 And pweight < 20 Then
    Gate1.Text = "D = 0.75 mm"
    Gate2.Visible = False
    Gate3.Visible = False
  ElseIf pweight >= 20 And pweight < 40 Then
    Gate1.Text = "D = 1.00 mm"
    Gate2.Visible = False
    Gate3.Visible = False
  ElseIf pweight >= 40 And pweight < 100 Then
    Gate1.Text = "D = 1.25 mm"
    Gate2.Visible = False
    Gate3.Visible = False
  ElseIf pweight >= 100 And pweight < 200 Then
    Gate1.Text = "D = 1.50 mm"
    Gate2.Visible = False
    Gate3.Visible = False
  ElseIf pweight >= 200 Then
    Gate1.Text = "D = 2.00 mm"
    Gate2.Visible = False
    Gate3.Visible = False
End If

picedgegate.Visible = False
picsubgate.Visible = True
```

```

picpingate.Visible = False
End If

If gatestr = "Pgate" Then
  If pweight > 0 And pweight < 5 Then
    Gate1.Text = "D = 0.70 mm"
    Gate2.Visible = False
    Gate3.Visible = False
  ElseIf pweight >= 5 And pweight < 40 Then
    Gate1.Text = "D = 0.80 mm"
    Gate2.Visible = False
    Gate3.Visible = False
  ElseIf pweight >= 40 And pweight < 200 Then
    Gate1.Text = "D = 1.00 mm"
    Gate2.Visible = False
    Gate3.Visible = False
  ElseIf pweight >= 200 Then
    Gate1.Text = "D = 1.20 mm"
    Gate2.Visible = False
    Gate3.Visible = False
  End If

  picedgegate.Visible = False
  picsubgate.Visible = False
  picpingate.Visible = True
End If

'cal clampforce -----:-----
If moldplate = 1 Then
  cf = ((parea / 100) * p / 1000) * cavnum2 + ((DR / 10) * lrunnerall * p / 1000)
  Clampforce.Text = Round(cf, 2)
ElseIf moldplate = 2 Then
  cfpart = ((parea / 100) * p / 1000) * cavnum2
  cfrunner = ((DR / 10) * lrunnerall * p / 1000)
  If cfpart >= cfrunner Then

```

```

    cf = cfpart
    Clampforce.Text = Round(cf, 2)
Else:
    cf = cfrunner
    Clampforce.Text = Round(cf, 2)
End If
End If
'Cal Fatigue -----
Ac = 1 * Y * (1 - (lossarea / 100)) * cavnum2
If smaterial = "1045" Or smaterial = "1055" Or smaterial = "P20" Then
    Sf = 203.5
ElseIf smaterial = "420" Or smaterial = "H13" Then
    Sf = 407
End If
Af = cf * 1000 / Sf
Ai = (Ac + Af) * 100
Aitext.Text = Round(Ai, 2)
'cal str -----
Am = xold.Text * yold.Text / 100 - Ac
Strmold.Text = cf * 1000 / Am
Strmold.Text = Round(Strmold.Text, 2)
'cal actual f -----
If sxf >= sxm Then
    sx = sxf
    hx = hf
ElseIf sxm > sxf Then
    sx = sxm
    hx = hm
End If
lx = xold.Text / 10
Select Case cavnum
Case "1"

```

$$sx = (lx - 1) / 2$$

Case "2X"

$$sx = (lx - (2 * 1) - x1) / 2$$

Case "2Y"

$$sx = (lx - 1) / 2$$

Case "4"

$$sx = (lx - (2 * 1) - x1) / 2$$

Case "4x"

$$sx = (lx - (4 * 1) - x1 - (2 * x2)) / 2$$

Case "4Y"

$$sx = (lx - 1) / 2$$

Case "8X"

$$sx = (lx - (4 * 1) - x1 - (2 * x2)) / 2$$

Case "8Y"

$$sx = (lx - (2 * 1) - x1) / 2$$

Case "16"

$$sx = (lx - (4 * 1) - x1 - (2 * x2)) / 2$$

End Select

ss = sx

hh = hx

Fxact = FFF(ss, p, Yd, e, hh)

fx_text.Text = Fxact * 10

If syf >= sym Then

 sy = syf

 hy = hf

ElseIf sym > syf Then

 sy = sym

 hy = hm

End If

ly = ymold.Text / 10

Select Case cavnum

Case "1"



$$sy = (ly - Y) / 2$$

Case "2X"

$$sy = (ly - Y) / 2$$

Case "2Y"

$$sy = (ly - (2 * Y) - y1) / 2$$

Case "4"

$$sy = (ly - (2 * Y) - y1) / 2$$

Case "4x"

$$sy = (ly - Y) / 2$$

Case "4Y"

$$sy = (ly - (4 * Y) - y1 - (2 * y2)) / 2$$

Case "8X"

$$sy = (ly - (4 * Y) - y1 - (2 * y2)) / 2$$

Case "8Y"

$$sy = (ly - (2 * Y) - y1) / 2$$

Case "16"

$$sy = (ly - (4 * Y) - y1 - (2 * y2)) / 2$$

End Select

ss = sy

hh = hy

Fyact = FFF(ss, p, ld, e, hh)

fy_text.Text = Fyact * 10

If slide = 1 And moldplate = 1 And ejec = 1 Then

Label29.Visible = False :

Rmold.Visible = False

Label31.Visible = False

Smold.Visible = False

ElseIf slide = 1 And moldplate = 1 And ejec = 2 Then

Label29.Visible = False

Rmold.Visible = False

ElseIf slide = 1 And moldplate = 2 And ejec = 1 Then

```

Label31.Visible = False
Smold.Visible = False
ElseIf slide = 2 And moldplate = 1 And ejec = 2 Then
    Label17.Visible = False
    DX4mold.Visible = False
    Label40.Visible = False
    DHmold.Visible = False
    Label39.Visible = False
    DSmold.Visible = False
End If
Text13.Text = moldplate
Text14.Text = ejec
Text15.Text = slide
Text3.Text = p
Text5.Text = e
Text6.Text = f
Text17.Text = pmaterial
Text18.Text = gatestr
Exit Sub
Errorshow:
MsgBox "Can't calculate , Please enter new value", , "Error message"
If slide = 1 Then
    If xxmold > 50 Then
        MsgBox "แม่พิมพ์กว้างเกินไปไม่สามารถคำนวณได้", , "Error message"
    End If
    If yymold > 70 Then
        MsgBox "แม่พิมพ์กว้างเกินไปไม่สามารถคำนวณได้", , "Error message"
    End If
ElseIf slide = 2 Then
    If xxmold > 25 Then
        MsgBox "แม่พิมพ์กว้างเกินไปไม่สามารถคำนวณได้", , "Error message"
    End If

```

```
If yymold > 30 Then
    MsgBox "แม่พิมพ์กว้างเกินไปไม่สามารถคำนวณได้", "Error message"
End If
End If
Unload Form6
Form4.Show
End Sub
Private Sub Command2_Click()
    Unload Me
    Form5.Show
End Sub
Private Sub Command4_Click()
    End
End Sub
Private Sub Form_Load()
    Form5.Hide
    Picture1.Visible = False
    Picture2.Visible = False
    Picture3.Visible = False
    Picture4.Visible = False
    Picture5.Visible = False
    Picture6.Visible = False
    pic1.Visible = False
    pic2.Visible = False
    pic3.Visible = False
    pic4.Visible = False
    pic5.Visible = False
    pic6.Visible = False
    pic7.Visible = False
    pic8.Visible = False
    pic9.Visible = False
End Sub
```

ภาคผนวก ข

คุณสมบัติของเหล็กสำหรับแม่พิมพ์ฉีดพลาสติก

JIS S45C Steel, Normalized

Categories: [Metal](#); [Ferrous Metal](#); [Carbon Steel](#); [AISI 1000 Series Steel](#); [Medium Carbon Steel](#)

Material Notes: Very common grade in Asia.

Key Words: Similar to AISI 1045 and DIN CK45.

Vendors: No vendors are listed for this material. Please [click here](#) if you are a supplier and would like information on how to add your listing to this material.

Physical Properties	Metric	English	Comments
Density	7.85 g/cc	0.284 lb/in ³	AISI 1045
Mechanical Properties	Metric	English	Comments
Hardness, Brinell	167 - 229	167 - 229	
Tensile Strength, Ultimate	569 MPa	82500 psi	
Tensile Strength, Yield	343 MPa	49800 psi	
Elongation at Break	20.0 %	20.0 %	
Modulus of Elasticity	205 GPa	29700 ksi	Typical steel
Poissons Ratio	0.290	0.290	Typical steel
Machinability	55 %	55 %	Based on AISI 1212 steel as 100% machinability
Shear Modulus	80.0 GPa	11600 ksi	Typical steel
Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000162 ohm-cm @Temperature 0.000 °C	0.0000162 ohm-cm @Temperature 32.0 °F	annealed specimen
Thermal Properties	Metric	English	Comments
CTE, linear 	11.5 µm/m-°C @Temperature 20.0 - 100 °C	6.39 µin/in-°F @Temperature 68.0 - 212 °F	
	13.0 µm/m-°C @Temperature 0.000 - 300 °C	7.22 µin/in-°F @Temperature 32.0 - 572 °F	
	14.0 µm/m-°C @Temperature 0.000 - 500 °C	7.78 µin/in-°F @Temperature 32.0 - 932 °F	
Specific Heat Capacity	0.486 J/g-°C @Temperature 50.0 - 100 °C	0.116 BTU/lb-°F @Temperature 122 - 212 °F	(AISI 1045) annealed
Thermal Conductivity	49.8 W/m-K	346 BTU-in/hr-ft ² -°F	Typical steel
Component Elements Properties	Metric	English	Comments
Carbon, C	0.420 - 0.480 %	0.420 - 0.480 %	
Chromium, Cr	<= 0.20 %	<= 0.20 %	
Copper, Cu	<= 0.30 %	<= 0.30 %	
Iron, Fe	97.6 - 98.8 %	97.6 - 98.8 %	
Manganese, Mn	0.60 - 0.90 %	0.60 - 0.90 %	
Nickel, Ni	<= 0.20 %	<= 0.20 %	
Phosphorous, P	<= 0.030 %	<= 0.030 %	
Silicon, Si	0.15 - 0.35 %	0.15 - 0.35 %	
Sulfur, S	<= 0.035 %	<= 0.035 %	

References for this datasheet.

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JIS S55C Steel, Normalized

Categories: [Metal](#); [Ferrous Metal](#); [Carbon Steel](#); [AISI 1000 Series Steel](#); [Medium Carbon Steel](#)

Material Notes: Very common grade in Asia.

Key Words: Similar to AISI 1050 and 1055 and DIN CK55.

Vendors: No vendors are listed for this material. Please [click here](#) if you are a supplier and would like information on how to add your listing to this material.

Physical Properties	Metric	English	Comments
Density	7.85 g/cc	0.284 lb/in ³	AISI 1055
Mechanical Properties	Metric	English	Comments
Hardness, Brinell	183 - 255	183 - 255	
Hardness, Rockwell C	9.00 - 24.5	9.00 - 24.5	
Tensile Strength, Ultimate	647 MPa	93900 psi	
Tensile Strength, Yield	392 MPa	56900 psi	
Elongation at Break	15.0 %	15.0 %	
Modulus of Elasticity	205 GPa	29700 ksi	Typical steel
Poissons Ratio	0.290	0.290	Typical steel
Machinability	55 %	55 %	Based on AISI 1212 steel as 100% machinability
Shear Modulus	80.0 GPa	11600 ksi	Typical steel
Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000163 ohm-cm @Temperature 0.000 C	0.0000163 ohm-cm @Temperature 32.0 F	condition of specimen unknown
Thermal Properties	Metric	English	Comments
CTE, linear 	11.0 µm/m-°C @Temperature 20.0 - 100 C	6.11 µin/in-°F @Temperature 68.0 - 212 F	
	12.4 µm/m-°C @Temperature 0.000 - 300 C	6.89 µin/in-°F @Temperature 32.0 - 572 F	
	13.9 µm/m-°C @Temperature 0.000 - 500 C	7.72 µin/in-°F @Temperature 32.0 - 932 F	
Specific Heat Capacity	0.486 J/g-°C @Temperature 50.0 - 100 C	0.116 BTU/lb-°F @Temperature 122 - 212 F	(AISI 1045) annealed
Thermal Conductivity	49.8 W/m-K	346 BTU-in/hr-ft ² -°F	Typical steel
Component Elements Properties	Metric	English	Comments
Carbon, C	0.520 - 0.580 %	0.520 - 0.580 %	
Chromium, Cr	<= 0.20 %	<= 0.20 %	
Copper, Cu	<= 0.30 %	<= 0.30 %	
Iron, Fe	97.5 - 98.7 %	97.5 - 98.7 %	
Manganese, Mn	0.60 - 0.90 %	0.60 - 0.90 %	
Nickel, Ni	<= 0.20 %	<= 0.20 %	
Phosphorous, P	<= 0.030 %	<= 0.030 %	
Silicon, Si	0.15 - 0.35 %	0.15 - 0.35 %	
Sulfur, S	<= 0.035 %	<= 0.035 %	

References for this datasheet.

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Bohler-Uddeholm P20 PREMIUM MODIFIED Pre-hardened Mold Steel

Categories: [Metal](#); [Ferrous Metal](#); [Alloy Steel](#); [Chrome-moly Steel](#); [Tool Steel](#); [Mold Steel](#)

Material Notes: Cr-Mo alloyed steel

Manufactured to consistently high quality standards, P20 modified has good polishing and texturing properties, good machinability and uniformed hardness.

Information provided by Bohler-Uddeholm

Key Words: AISI P20 modified

Vendors: No vendors are listed for this material. Please [click here](#) if you are a supplier and would like information on how to add your listing to this material.

Physical Properties	Metric	English	Comments
Density	7.81 g/cc	0.282 lb/in ³	hardened to 310 HB
	7.75 g/cc <small>@Temperature 199 °C</small>	0.280 lb/in ³ <small>@Temperature 390 °F</small>	hardened to 310 HB
Mechanical Properties	Metric	English	Comments
Hardness, Brinell	285 - 340	285 - 340	Hardened and tempered (Delivery condition)
Tensile Strength, Ultimate	951 - 1100 MPa	138000 - 160000 psi	hardened to 300 HB
Tensile Strength, Yield	>= 696 MPa	>= 101000 psi	hardened to 300 HB
Elongation at Break	>= 12.0 %	>= 12.0 %	hardened to 300 HB
Modulus of Elasticity	205 GPa	29700 ksi	(hardened to 310 HB)
	200 GPa <small>@Temperature 199 °C</small>	29000 ksi <small>@Temperature 390 °F</small>	hardened to 310 HB
Thermal Properties	Metric	English	Comments
CTE, linear	12.6 µm/m-°C <small>@Temperature 199 °C</small>	7.00 µin/in-°F <small>@Temperature 390 °F</small>	hardened to 310 HB
Specific Heat Capacity	0.460 J/g-°C <small>@Temperature 20.0 °C</small>	0.110 BTU/lb-°F <small>@Temperature 66.0 °F</small>	hardened to 310 HB
Thermal Conductivity 	29.0 W/m-K <small>@Temperature 20.0 °C</small>	201 BTU-in/hr-ft ² -°F <small>@Temperature 68.0 °F</small>	hardened to 310 HB
	29.5 W/m-K <small>@Temperature 199 °C</small>	205 BTU-in/hr-ft ² -°F <small>@Temperature 390 °F</small>	hardened to 310 HB

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Latrobe LSS™ 420 Supreme Plastic Mold Steel (AISI 420)

Categories: [Metal](#); [Ferrous Metal](#); [Stainless Steel](#); [Tool Steel](#); [Mold Steel](#)

Material Notes: TLS 420 Supreme is a specially-refined, mold-quality stainless steel that is engineered to provide supreme polishability, good corrosion resistance, and good wear resistance. TLS 420 supreme is manufactured using special melting and remelting techniques. These special melting practices along with proprietary forging practices result in the highest levels of microcleanliness and a homogeneous microstructure. TLS 420 Supreme is the material of choice for the manufacture of plastic molding tools that require the highest lens-quality polished finishes. Typical applications include molds for compact disks (CDs), medical laboratory equipment, optical lenses, and other components, which require critical surface finishes.

Information Provided by Timken Latrobe Steel.

Timken sold Latrobe in December 2006. They are now Latrobe Specialty Steels Co.

Vendors: No vendors are listed for this material. Please [click here](#) if you are a supplier and would like information on how to add your listing to this material.

Physical Properties	Metric	English	Comments
Specific Gravity	7.75 g/cc	7.75 g/cc	
Density	7.75 g/cc	0.280 lb/in ³	
Chemical Properties	Metric	English	Comments
Critical Temperature	802 °C	1480 °F	Ac1
	863 °C	1590 °F	Ac3
Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	52	52	Air Cooled from 982°C, 30 minutes
	55.5	55.5	Air Cooled from 1010°C, 30 minutes
	56.5	56.5	Air Cooled from 1038°C, 30 minutes
Modulus of Elasticity	200 GPa	29000 ksi	
Izod Impact Unnotched	13.6 J	10.0 ft-lb	Air Cooled from 1010°C; 393°C Temper Temperature
	20.3 J	15.0 ft-lb	Air Cooled from 1010°C; 593°C Temper Temperature
Machinability	55.0 - 60.0 %	55.0 - 60.0 %	1% Carbon Steel
Thermal Properties	Metric	English	Comments
CTE, linear 	10.2 µm/m-°C	5.67 µin/in-°F	
	@Temperature 20.0 - 100 °C	@Temperature 68.0 - 212 °F	
	11.7 µm/m-°C	6.50 µin/in-°F	
	@Temperature 20.0 - 538 °C	@Temperature 68.0 - 1000 °F	
Thermal Conductivity 	22.84 W/m-K	158.5 BTU-in/hr-ft ² -°F	
	@Temperature 20.0 °C	@Temperature 68.0 °F	
	23.93 W/m-K	166.1 BTU-in/hr-ft ² -°F	
	@Temperature 199 °C	@Temperature 390 °F	
	24.95 W/m-K	173.2 BTU-in/hr-ft ² -°F	
	@Temperature 399 °C	@Temperature 750 °F	
Component Elements Properties	Metric	English	Comments
Chromium, Cr	13.6 %	13.6 %	
Iron, Fe	84.87 %	84.87 %	
Manganese, Mn	0.45 %	0.45 %	
Other	0.380 %	0.380 %	
Silicon, Si	0.40 %	0.40 %	
Vanadium, V	0.30 %	0.30 %	

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Bohler-Uddeholm ORVAR® SUPERIOR (Premium AISI H13) Hot Work Tool Steel

Categories: [Metal](#); [Ferrous Metal](#); [Alloy Steel](#); [Chrome-moly Steel](#); [Tool Steel](#); [Hot Work Steel](#)

Material Chromium-molybdenum-vanadium alloyed steel

Notes:

A premium Cr-Mo-V-alloyed hot work die steel with good resistance to thermal fatigue. The steel is produced by a special melting and refining technique in order to give mechanical properties with maximum isotropy and is certified to meet a minimum Charpy V-notch test result of 10 ft-lbs (13.6 J). Suitable for a wide variety of hot work applications, including tools for high pressure die casting, hot extrusion and press forging, Orvar® Superior meets or exceeds the NADCA 207-97 and the 207-2003 Superior Specification in dimensions up to 18" in thickness.

Orvar Superior is characterized by:

- A high level of resistance to thermal shock and thermal fatigue
- Good high-temperature strength
- Excellent toughness and ductility in all directions
- Good machinability and polishability
- Excellent through-hardening properties
- Good dimensional stability during hardening

Information provided by Bohler-Uddeholm

Vendors: No vendors are listed for this material. Please [click here](#) if you are a supplier and would like information on how to add your listing to this material.

Physical Properties	Metric	English	Comments
Density	7.78 g/cc	0.281 lb/in ³	hardness of 45 HRC
	7.58 g/cc @Temperature 599 °C	0.274 lb/in ³ @Temperature 1110 °F	hardness of 45 HRC
	7.67 g/cc @Temperature 399 °C	0.277 lb/in ³ @Temperature 750 °F	hardness of 45 HRC
Mechanical Properties	Metric	English	Comments
Hardness, Brinell	180	180	Soft annealed (Delivery condition)
Tensile Strength, Ultimate	1420 MPa	206000 psi	hardness of 45 HRC
	1810 MPa	263000 psi	hardness of 52 HRC
Tensile Strength, Yield	1280 MPa	185000 psi	0.2% (hardness of 45 HRC)
	1520 MPa	220000 psi	0.2% (hardness of 52 HRC)
Modulus of Elasticity	210 GPa	30500 ksi	(hardness of 45 HRC)
	140 GPa @Temperature 599 °C	20300 ksi @Temperature 1110 °F	hardness of 45 HRC
	180 GPa @Temperature 399 °C	26100 ksi @Temperature 750 °F	hardness of 45 HRC
Charpy Impact 	27.1 J @Temperature 98.9 °C	20.0 ft-lb @Temperature 210 °F	V-notch (hardness of 45 HRC)
	74.6 J @Temperature 499 °C	55.0 ft-lb @Temperature 930 °F	V-notch (hardness of 45 HRC)
Thermal Properties	Metric	English	Comments
CTE, linear 	12.6 µm/m-°C @Temperature 399 °C	7.00 µin/in-°F @Temperature 750 °F	hardness of 45 HRC
	13.1 µm/m-°C @Temperature 599 °C	7.30 µin/in-°F @Temperature 1110 °F	hardened to 45 HRC
Thermal Conductivity 	25.0 W/m-K @Temperature 20.0 °C	174 BTU-in/hr-ft ² -°F @Temperature 68.0 °F	hardness of 45 HRC
	29.0 W/m-K @Temperature 399 °C	201 BTU-in/hr-ft ² -°F @Temperature 750 °F	hardness of 45 HRC
	30.0 W/m-K @Temperature 599 °C	208 BTU-in/hr-ft ² -°F @Temperature 1110 °F	hardness of 45 HRC
Processing Properties	Metric	English	Comments
Processing Temperature	1024 °C	1875 °F	heated for 30 min, then quenched in air and tempered 2 + 2 h at 1130°F (hardness = 45 HRC)
Component Elements Properties	Metric	English	Comments
Carbon, C	0.390 %	0.390 %	
Chromium, Cr	5.20 %	5.20 %	
Manganese, Mn	0.40 %	0.40 %	
Molybdenum, Mo	1.40 %	1.40 %	
Silicon, Si	1.0 %	1.0 %	
Vanadium, V	0.90 %	0.90 %	

ภาคผนวก ค
ความดันเฉลี่ยภายในโพรงแบบ

<Reference> Examples of cavity pressure (P_m) resulting from simulation by TMconcept

Product : Square plate (100 mm square)
 Project area : 100 cm²
 Wall thickness : 1.5 mm (L/T = 47)
 Runner type : One pinpoint gate
 Gate area : 3.14 mm²
 Analysis program : faBest (TMconcept)

Resin	P_m (kgf/cm ²)	Resin	P_m (kgf/cm ²)
ABS	336	PC - GF 30%	785
ABS - GF 20%	444	PC - ABS	480
POM - copolymer	379	PBT	499
POM - homopolymer	366	PBT - GF 30%	618
PMMA	502	PET	460
PA6	302	PET - GF 30%	553
PA66	322	LDPE	191
PA66 - GF 30%	463	HDPE	351
PA12	424	PP - homopolymer	210
SAN (AS)	389	PP - copolymer	226
PPS - GF 40%	538	GPPS	207
PC	571	HIPS	219

ที่มา : Molding Course B., Practical Molding Application (SGM-1/SES/SHC/iMSeries) user Manual, Sumitomo Heavy Industries, Ltd [23]

Processing of Plastics

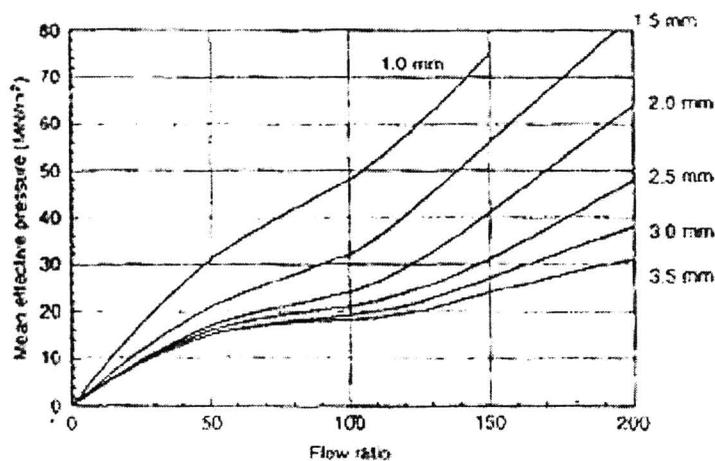


Fig. 4.42 Clamping pressures for different cavity geometries (typical values for easy flow materials)

prudent to increase this value by 10–20% due to the uncertainties associated with specific moulds.

For plastics other than the easy flow materials referred to above, it would be normal to apply a factor to allow for the higher viscosity. Typical viscosity factors are given below.

Material	Viscosity Factor
Polyethylene, polypropylene, polystyrene	1
Nylon 66	1.2 → 1.4
ABS	1.3 → 1.4
Acrylic	1.5 → 1.7
PVC	1.6 → 1.8
Polycarbonate	1.7 → 2.0

ที่มา : Crawford , R.J., 1998, Plastics Engineering, 3rd ed, Butterworth-Heinemann,

Linacre House, Jordan Hill, Oxford OX2 8DP [24]

ประวัติผู้วิจัย

ชื่อ – สกุล	นายณัฐวุฒิ ชนนันท์กุล
วัน เดือน ปีเกิด	28 มิถุนายน 2524
ประวัติการศึกษา	
ระดับมัธยมศึกษา	ประโยคมัธยมศึกษาตอนต้น โรงเรียนวัดสุทธิวราราม พ.ศ. 2538 ประโยคมัธยมศึกษาตอนปลาย โรงเรียนวัดสุทธิวราราม พ.ศ. 2541
ระดับปริญญาตรี	วิศวกรรมศาสตรบัณฑิต สาขาวิชาวิศวกรรมเครื่องกล มหาวิทยาลัยเกษตรศาสตร์ พ.ศ. 2545
ระดับปริญญาโท	วิศวกรรมศาสตรมหาบัณฑิต สาขาวิชาวิศวกรรมกระบวนการขึ้นรูปพอลิเมอร์ มหาวิทยาลัยเทคโนโลยีพระจอมเกล้าธนบุรี พ.ศ. 2553
ประวัติการทำงาน	วิศวกร บริษัทโทโฮกุไฟโอเนียร์ ประเทศไทย จำกัด พ.ศ. 2547-2551 วิศวกร บริษัทนิโปร ประเทศไทย จำกัด พ.ศ. 2552-ปัจจุบัน

:

มหาวิทยาลัยเทคโนโลยีพระจอมเกล้าธนบุรี
ข้อตกลงว่าด้วยการโอนสิทธิในทรัพย์สินทางปัญญาของนักศึกษาระดับบัณฑิตศึกษา

วันที่ 24 เดือน พฤษภาคม พ.ศ 2554

ข้าพเจ้านายณัฐฉาน รัตนันท์กุล รหัสประจำตัว 49431603 เป็นนักศึกษามหาวิทยาลัยเทคโนโลยีพระจอมเกล้าธนบุรี

ระดับ ประกาศนียบัตรบัณฑิต ปริญญาโท ปริญญาเอก

หลักสูตรวิศวกรรมศาสตรมหาบัณฑิต สาขาวิชาวิศวกรรมกระบวนการขึ้นรูปพอลิเมอร์ คณะวิศวกรรมศาสตร์
อยู่บ้านเลขที่ 508 ซอยเจริญกรุง67 ถนนเจริญกรุง แขวงยานนาวา เขตสาทร จังหวัดกรุงเทพมหานคร
รหัสไปรษณีย์ 10120

เป็น “ผู้โอน” ขอโอนสิทธิในทรัพย์สินทางปัญญาให้ไว้กับมหาวิทยาลัยเทคโนโลยีพระจอมเกล้าธนบุรี โดยมี
รศ.ดร.ปิยะบุตร วานิชพงษ์พันธุ์ ตำแหน่ง รองคณบดีฝ่ายวิชาการ เป็นตัวแทน “ผู้รับโอน” สิทธิในทรัพย์สินทาง
ปัญญาและมีข้อตกลงดังนี้

1. ข้าพเจ้าได้จัดทำโครงการเฉพาะเรื่อง เรื่อง การใช้คอมพิวเตอร์คำนวณหาขนาดแม่พิมพ์ฉีดพลาสติก
ซึ่งอยู่ในความควบคุมของ ผศ.ดร.สุรศิษฐ์ โรจนันต์ อาจารย์ที่ปรึกษา ตามพระราชบัญญัติลิขสิทธิ์ พ.ศ. 2537
และถือว่าเป็นส่วนหนึ่งของการศึกษาตามหลักสูตรของมหาวิทยาลัยเทคโนโลยีพระจอมเกล้าธนบุรี
2. ข้าพเจ้าตกลงโอนลิขสิทธิ์จากผลงานทั้งหมดที่เกิดขึ้นจากการสร้างสรรค์ของข้าพเจ้าในโครงการ
เฉพาะเรื่องให้ไว้กับมหาวิทยาลัยเทคโนโลยีพระจอมเกล้าธนบุรี ตลอดอายุแห่งการคุ้มครองลิขสิทธิ์ตาม
พระราชบัญญัติลิขสิทธิ์ พ.ศ. 2537 ตั้งแต่วันที่ได้รับอนุมัติโครงร่างโครงการเฉพาะเรื่องจากมหาวิทยาลัย
3. ในกรณีที่ข้าพเจ้าประสงค์จะนำโครงการเฉพาะเรื่องไปใช้ในการเผยแพร่ในสื่อใดๆ ก็ตาม ข้าพเจ้า
จะต้องระบุว่าโครงการเฉพาะเรื่องเป็นผลงานของมหาวิทยาลัยเทคโนโลยีพระจอมเกล้าธนบุรีทุกครั้งที่มีการ
เผยแพร่
4. ในกรณีที่ข้าพเจ้าประสงค์จะนำโครงการเฉพาะเรื่องไปเผยแพร่ หรือให้ผู้อื่นทำซ้ำหรือดัดแปลงหรือ
เผยแพร่ต่อสาธารณชนหรือกระทำการอื่นใด ตามพระราชบัญญัติลิขสิทธิ์ พ.ศ. 2537 โดยมีค่าตอบแทนในเชิง
ธุรกิจ ข้าพเจ้าจะกระทำได้เมื่อได้รับความยินยอมเป็นลายลักษณ์อักษรจากมหาวิทยาลัยเทคโนโลยีพระจอมเกล้า
ธนบุรีก่อน
5. ในกรณีที่ข้าพเจ้าประสงค์จะนำข้อมูลจากโครงการเฉพาะเรื่องไปประดิษฐ์หรือพัฒนาต่อยอดเป็น
สิ่งประดิษฐ์หรืองานทรัพย์สินทางปัญญาประเภทอื่น ภายในระยะเวลาสิบ (10) ปีนับจากวันลงนามในข้อตกลง
ฉบับนี้ ข้าพเจ้าจะกระทำได้เมื่อได้รับความยินยอมเป็นลายลักษณ์อักษรจากมหาวิทยาลัยเทคโนโลยีพระจอมเกล้า
ธนบุรี และมหาวิทยาลัยเทคโนโลยีพระจอมเกล้าธนบุรีมีสิทธิในทรัพย์สินทางปัญญานั้น พร้อมกับได้รับชำระ
ค่าตอบแทนการอนุญาตให้ใช้สิทธิดังกล่าว รวมถึงการจัดสรรผลประโยชน์อันพึงเกิดขึ้นจากส่วนใดส่วนหนึ่งหรือ
ทั้งหมดของโครงการเฉพาะเรื่องในอนาคต โดยให้เป็นไปตามระเบียบสถาบันเทคโนโลยีพระจอมเกล้าธนบุรี ว่า
ด้วย การบริหารผลประโยชน์อันเกิดจากทรัพย์สินทางปัญญา พ.ศ. 2538

6. ในกรณีที่มีผลประโยชน์เกิดขึ้นจากโครงการเฉพาะเรื่องหรืองานทรัพย์สินทางปัญญาอื่นที่ข้าพเจ้า
ทำขึ้นโดยมีมหาวิทยาลัยเทคโนโลยีพระจอมเกล้าธนบุรีเป็นเจ้าของ ข้าพเจ้าจะมีสิทธิได้รับการจัดสรร
ผลประโยชน์อันเกิดจากทรัพย์สินทางปัญญาดังกล่าวตามอัตราที่กำหนดไว้ในระเบียบสถาบันเทคโนโลยีพระจอม
เกล้าธนบุรี ว่าด้วย การบริหารผลประโยชน์อันเกิดจากทรัพย์สินทางปัญญา พ.ศ. 2538

ลงชื่อ.....*นายณัฐวุฒิ ธนนันท์กุล*.....ผู้โอนสิทธิ
(นายณัฐวุฒิ ธนนันท์กุล)
(นักศึกษา)

ลงชื่อ.....*รศ.ดร. ปิยะบุตร วานิชพงษ์พันธุ์*.....ผู้รับโอนสิทธิ
(รศ.ดร. ปิยะบุตร วานิชพงษ์พันธุ์)
รองคณบดีฝ่ายวิชาการ ปฏิบัติการแทนคณบดี

ลงชื่อ.....*ผศ.ดร.สุรศิษฐ์ โรจนนันต์*.....พยาน ที่ปรึกษา
(ผศ.ดร.สุรศิษฐ์ โรจนนันต์)

ลงชื่อ.....*(ลายเซ็น)*.....พยาน หัวหน้าภาควิชา
(รศ.คิลก ศรีประไพ)



