

KETIV

Manufacturing Innovation. Together.

```
Function ValidateSeamsAndHatches() As Boolean
' This function validates that the inlet location does not interfere with a hatch or tank seam
' If there's no interference, the value "True" is returned
' Otherwise, a messagebox let's the user know there was an error, and values will need to be re-entered
Dim blnValid As Boolean = True

If INLET_LOC = "Top" Then
    Dim dblFrontLoc, dblBackLoc As Double
    ' These two variables represent the two Z coordinates of the inlet pipe, including the front and back sides
    dblFrontLoc = INLET_OFF - INLET_PIPE_OD / 2
    dblBackLoc = INLET_OFF + INLET_PIPE_OD / 2
    ' This If statement does the math for the front hatch
    ' F_HATCH_OFF represents the offset value of the hatch from the front of the tank body (not including dish depths)
    ' SEAM_CLEAR_MIN represents the minimum clearance you want enforced to place inlets around seams
    ' 20 in represents how wide the actual hatch is; this will need to become a variable if more hatches are used in the future
    If F_HATCH Then
        If (dblFrontLoc > F_HATCH_OFF - SEAM_CLEAR_MIN And dblFrontLoc < F_HATCH_OFF + 20 in + SEAM_CLEAR_MIN) Or _
            (dblBackLoc > F_HATCH_OFF - SEAM_CLEAR_MIN And dblBackLoc < F_HATCH_OFF + 20 in + SEAM_CLEAR_MIN) Then
            MsgBox.Show("The tank inlet will need to be moved to avoid interference with the front hatch." & vbCrLf & _
                "Avoid an inlet offset between " & F_HATCH_OFF - INLET_PIPE_OD / 2 - SEAM_CLEAR_MIN & Chr(34) & " and " & _
                F_HATCH_OFF + 20 in + INLET_PIPE_OD / 2 + SEAM_CLEAR_MIN & Chr(34) & ".")
            blnValid = False
            ' Show the main form before finishing the test and returning a value of False
            iLogicForm.Show("Configure Tank")
        End If
    End If

    ' This If statement does the math for the rear hatch
    ' R_HATCH_OFF represents the offset value of the hatch from the rear of the tank body (not including dish depths)
    ' SEAM_CLEAR_MIN represents the minimum clearance you want enforced to place inlets around seams
    ' 20 in represents how wide the actual hatch is; this will need to become a variable if more hatches are used in the future
    If R_HATCH Then
        If (dblFrontLoc > TANK_L - R_HATCH_OFF - 20 in - SEAM_CLEAR_MIN And dblFrontLoc < TANK_L - R_HATCH_OFF + SEAM_CLEAR_MIN) Or _
            (dblBackLoc > TANK_L - R_HATCH_OFF - 20 in - SEAM_CLEAR_MIN And dblBackLoc < TANK_L - R_HATCH_OFF + SEAM_CLEAR_MIN) Then
            MsgBox.Show("The tank inlet will need to be moved to avoid interference with the rear hatch." & vbCrLf & _
                "Avoid an inlet offset between " & TANK_L - R_HATCH_OFF - 20 in - INLET_PIPE_OD / 2 - SEAM_CLEAR_MIN & Chr(34) & " and " & _
                TANK_L - R_HATCH_OFF + INLET_PIPE_OD / 2 + SEAM_CLEAR_MIN & Chr(34) & ".")
            blnValid = False
            ' Show the main form before finishing the test and returning a value of False
            iLogicForm.Show("Configure Tank")
        End If
    End If

    ' This If statement does the math for the seam clearance calculations
    ' TANK_L represents the length of the tank (not including dish depths)
    ' SHELL_Q_1 and SHELL_Q_2 represent how many plates of width 1 and width 2 are required to create the tank body
    ' SHELL_W_1 and SHELL_W_2 represent the widths of the shell plates used to create the tank shell body
    If TANK_L > 72 in Then
        Dim dblSeamLocation As Double
        ' The For statement will take us from one seam of the tank to the next, until we pass where the inlet is located
        For seam = 1 To SHELL_Q_1 + SHELL_Q_2 - 1
            If seam <= SHELL_Q_1 Then
                dblSeamLocation = SHELL_W_1 * seam
            Else
                dblSeamLocation = SHELL_Q_1 * SHELL_W_1 + (seam - SHELL_Q_1) * SHELL_W_2
            End If
        End If
    End If
End If
```



Manufacturing Innovation. Together.

```
' This statement will show you how to create a compound If statement using "And" and "Or" operators
If (dblFrontLoc > dblSeamLocation - SEAM_CLEAR_MIN And dblFrontLoc < dblSeamLocation + SEAM_CLEAR_MIN) Or _
    (dblBackLoc > dblSeamLocation - SEAM_CLEAR_MIN And dblBackLoc < dblSeamLocation + SEAM_CLEAR_MIN) Or _
    (INLET_OFF > dblSeamLocation - SEAM_CLEAR_MIN And INLET_OFF < dblSeamLocation + SEAM_CLEAR_MIN) Then _
    MessageBox.Show("The tank inlet will need to be moved to avoid interference with one of the seams." & vbCrLf & _
        "Avoid an inlet offset between " & dblSeamLocation - INLET_PIPE_OD / 2 - SEAM_CLEAR_MIN & Chr(34) & " and " & _
        dblSeamLocation + INLET_PIPE_OD / 2 + SEAM_CLEAR_MIN & Chr(34) & ".")
    blnValid = False
    ' Show the main form before finishing the test and returning a value of False
    iLogicForm.Show("Configure Tank")
End If
Next
End If
End If
ValidateSeamsAndHatches = blnValid
End Function
```