

KETIV

Manufacturing Innovation. **Together.**

```
Sub Main()  
    ' This rule will assemble flanges on the front and the rear of the Gunline, based on user selection  
    Dim dblOffsetFront, dblOffsetRear As Double  
  
    ' We will first find the initial offset values for the front and rear offsets, based on the flange type,  
    '     flange end connection, and gunline size (for each end connection independently  
    dblOffsetFront = FindOffsetValue(GUNLINE_F_FL_TYPE, GUNLINE_F_FL_END, GUNLINE_SIZE)  
    dblOffsetRear = FindOffsetValue(GUNLINE_R_FL_TYPE, GUNLINE_R_FL_END, GUNLINE_SIZE)  
  
    Dim strSize As String  
  
    If GUNLINE_SIZE = 4 in Then  
        strSize = "4"  
    Else  
        strSize = "6"  
    End If  
  
    ' The "Open" flanges will have different location matrices than the "Valve" and "Capped" options  
    ' That's because the model has a different orientation than the "Capped" and "Valve" assemblies  
    Dim MatrixA, MatrixB As DocumentUnitsMatrix  
    ' We first calculate the location matrix for the end connections in the rear  
    If GUNLINE_R_FL_END = "Open" Then  
        MatrixA = ThisAssembly.Geometry.Matrix(0, 0, 1, 0,  
                                                0, 1, 0, 0,  
                                                -1, 0, 0, GUNLINE_L + dblOffset,  
                                                0, 0, 0, 1)  
    Else  
        MatrixA = ThisAssembly.Geometry.Matrix(1, 0, 0, 0,  
                                                0, 1, 0, 0,  
                                                0, 0, 1, GUNLINE_L + dblOffset,  
                                                0, 0, 0, 1)  
    End If  
    ' We next calculate the location matrix for the end connection in the front  
    If GUNLINE_F_FL_END = "Open" Then  
        MatrixB = ThisAssembly.Geometry.Matrix(0, 0, 1, 0,  
                                                0, -1, 0, 0,  
                                                1, 0, 0, -dblOffset,  
                                                0, 0, 0, 1)  
    Else  
        MatrixB = ThisAssembly.Geometry.Matrix(-1, 0, 0, 0,  
                                                0, 1, 0, 0,  
                                                0, 0, -1, -dblOffset,  
                                                0, 0, 0, 1)  
    End If  
  
    Dim strBrowserNameFront, strBrowserNameRear, strFileNameFront, strFileNameRear As String  
  
    ' These lines of code set the browser name we want for the front end connection, and find the filepath based on the  
    '     flange type and gunline size  
    If GUNLINE_F_FL_END = "Open" Then  
        strBrowserNameFront = "ASME B16.5 Flange " & GUNLINE_F_FL_TYPE & " - Class 150 " & strSize  
        strFileNameFront = LIBRARY_PATH & "Flanges\ASME B16.5 Flange " & GUNLINE_F_FL_TYPE & " - Class 150 " & strSize & ".ipt"  
    ElseIf GUNLINE_F_FL_END = "Capped" Then  
        strBrowserNameFront = GUNLINE_F_FL_TYPE & " to Blind - " & strSize  
        strFileNameFront = LIBRARY_PATH & "Flanges\" & GUNLINE_F_FL_TYPE & " to Blind - " & strSize & ".iam"  
    Else  
        strBrowserNameFront = GUNLINE_F_FL_TYPE & " to Threaded Valve - " & strSize
```

KETIV

Manufacturing Innovation. **Together.**

```
        strFileNameFront = LIBRARY_PATH & "Valves\Butterfly\" & strSize & " Inch\" & GUNLINE_F_FL_TYPE & " to Threaded Valve - " & strSize & ".iam"
    End If
    ' These lines of code set the browser name we want for the rear end connection, and find the filepath based on the
    '     flange type and gunline size
    If GUNLINE_R_FL_END = "Open" Then
        strBrowserNameRear = "ASME B16.5 Flange " & GUNLINE_R_FL_TYPE & " - Class 150 " & strSize
        strFileNameRear = LIBRARY_PATH & "Flanges\ASME B16.5 Flange " & GUNLINE_R_FL_TYPE & " - Class 150 " & strSize & ".ipt"
    ElseIf GUNLINE_R_FL_END = "Capped" Then
        strBrowserNameRear = GUNLINE_R_FL_TYPE & " to Blind - " & strSize
        strFileNameRear = LIBRARY_PATH & "Flanges\" & GUNLINE_R_FL_TYPE & " to Blind - " & strSize & ".iam"
    Else
        strBrowserNameRear = GUNLINE_R_FL_TYPE & " to Threaded Valve - " & strSize
        strFileNameRear = LIBRARY_PATH & "Valves\Butterfly\" & strSize & " Inch\" & GUNLINE_R_FL_TYPE & " to Threaded Valve - " & strSize & ".iam"
    End If

    ' This code adds the end connections to the assembly, and places them based on the matrices determined above
    Dim Flange1 = Components.Add(strBrowserNameFront & ":1", strFileNameFront, MatrixB, True)
    Dim Flange2 = Components.Add(strBrowserNameRear & ":2", strFileNameRear, MatrixA, True)
End Sub

Function FindOffsetValue(strFlangeType As String, strFlangeEndType As String, intSize As Integer) As Double
    ' This function determines what the offset value should be for creating the location matrices of different
    '     combinations of flange types and end connections
    Dim dblOffsetValue As Double

    Select Case strFlangeEndType
        Case "Capped"
            dblOffsetValue = 0
        Case "Open"
            If strFlangeType = "Welding Neck" Then
                If intSize = 4 in Then
                    dblOffsetValue = 3
                Else
                    dblOffsetValue = 3.5
                End If
            Else
                dblOffsetValue = .56
            End If
        Case "Valve"
            If strFlangeType = "Welding Neck" Then
                If intSize = 4 in Then
                    dblOffsetValue = 4.5
                Else
                    dblOffsetValue = 5
                End If
            Else
                dblOffsetValue = 2.06
            End If
        End Select

    End Select

    Return dblOffsetValue
End Function
```