

/PREP7

***GET**, Tempo_0, ACTIVE, 0, TIME, WALL,

***AFUN**,DEG !unidade de ângulos

!*ASK,p_tol,espessura mínima de parede,0.002

kp = 1 !Contador de Kpts

k_l = 0 !Contador de Linhas

Area_count = 0 !Contador de Areas

***DIM**,Blade_info,ARRAY,15,4

Blade_info(1,1) =

0.15,0.218,0.286,0.354,0.421,0.489,0.557,0.625,0.693,0.761,0.829,0.896,0.964,1.032,1.1

Blade_info(1,2) = 0.29,0.38,0.44,0.49,0.52,0.53,0.54,0.53,0.5,0.47,0.43,0.38,0.31,0.22,0.1

Blade_info(1,3) =

43.69,40.68,37.86,35.22,32.73,30.41,28.23,26.19,24.29,22.52,20.87,19.33,17.9,16.57,15.34

Blade_info(1,4) =

0.102,0.134,0.157,0.174,0.185,0.190,0.190,0.187,0.179,0.168,0.154,0.135,0.112,0.08,0.033

***DIM**,Area_info,ARRAY,5,2,15 ! Matriz de propriedades das áreas que formam a superfície do sólido

***DIM**,Blade_points_X,ARRAY,101,3,15

***DIM**,Blade_points_Y,ARRAY,101,3,15

***DIM**,Blade_points_Z,ARRAY,101,3,15

***DIM**,Blade_points_N,ARRAY,101,3,15

***DIM**,Blade_lines_N,ARRAY,1,3,15

***VEC**,raiolim,D,ALLOC,4 !Criando vetor dos raios limites da esfera a ser criada

***VEC**,vecrprev,D,ALLOC,1

stop = 1

***DOWHILE**,stop

/INQUIRE,file_valid,EXIST,txt_node_data,txt,,

***IF**,file_valid,EQ,0,THEN

! Do-loop para gerar o sólido por loft ou skinning, cria-se o sketch de cada sessão e então ! !

! aplica-se o skinning para criar a área lateral

***DO**,i,1,15

/VIEW,1,1,1,1

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/ANG,1
/REP,FAST
!Perfil NACA 4415
Corda = Blade_info(i,2)
Area_info(3,1,i) = Blade_info(i,2)
Area_info(3,2,i) = Blade_info(i,2)
m = (4/100)
p = (4/10)
t = (15/100)

x_c = 0
x_cinc = 0.01

z_coord = Blade_info(i,1)
Area_info(1,1,i) = Blade_info(i,1)
Area_info(1,2,i) = Blade_info(i,1)
teta_blade = Blade_info(i,3)
dist_cent = Blade_info(i,4)
x_desloc = -corda*0.33
y_desloc = 0

*DO,j,1,101

*IF,x_c,GE,0,AND,x_c,LE,p,THEN
y_c = (m/p**2)*(2*p*x_c-x_c**2)
teta_surf = ATAN( (2*m*(p-x_c))/(p**2))
Area_info(4,1,i) = teta_surf
Area_info(4,2,i) = teta_surf

*ELSE
y_c = (m/(1-p)**2)*(1-(2*p) + 2*p*x_c - x_c**2)
teta_surf = ATAN((((2*m)/((1-p)**2))*(p-x_c))
Area_info(4,1,i) = teta_surf
Area_info(4,2,i) = teta_surf

*ENDIF

y_t = (5*t)*(0.2969*(x_c**(1/2))-0.126*x_c-0.3516*(x_c**2)+
0.2843*(x_c**3)-0.1015*(x_c**4))

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Area_info(5,1,i) = y_t

Area_info(5,2,i) = y_t

$x_u = x_c - y_t \sin(\text{teta_surf})$

$y_u = y_c + y_t \cos(\text{teta_surf})$

$x_l = x_c + y_t \sin(\text{teta_surf})$

$y_l = y_c - y_t \cos(\text{teta_surf})$

$x_{cs} = (x_c \cdot \text{corda} + x_{\text{desloc}})$

$y_{cs} = (y_c \cdot \text{corda} + y_{\text{desloc}})$

$x_{cr} = x_{cs} \cos(\text{teta_blade}) - y_{cs} \sin(\text{teta_blade})$

$y_{cr} = x_{cs} \sin(\text{teta_blade}) + y_{cs} \cos(\text{teta_blade})$

$x_{us} = (x_u \cdot \text{corda} + x_{\text{desloc}})$

$y_{us} = (y_u \cdot \text{corda} + y_{\text{desloc}})$

$x_{ur} = x_{us} \cos(\text{teta_blade}) - y_{us} \sin(\text{teta_blade})$

$y_{ur} = x_{us} \sin(\text{teta_blade}) + y_{us} \cos(\text{teta_blade})$

$x_{ls} = (x_l \cdot \text{corda} + x_{\text{desloc}})$

$y_{ls} = (y_l \cdot \text{corda} + y_{\text{desloc}})$

$x_{lr} = x_{ls} \cos(\text{teta_blade}) - y_{ls} \sin(\text{teta_blade})$

$y_{lr} = x_{ls} \sin(\text{teta_blade}) + y_{ls} \cos(\text{teta_blade})$

***IF**,x_c,EQ,1,THEN

x_ur = x_cr

y_ur = y_cr

x_lr = x_cr

y_lr = y_cr

***ENDIF**

!KPLOT

K,kp,x_cr,y_cr,z_coord

Blade_points_N(j,2,i) = kp

Blade_points_X(j,2,i) = x_cr

Blade_points_Y(j,2,i) = y_cr

Blade_points_Z(j,2,i) = z_coord

kp = kp + 1

K,kp,x_ur,y_ur,z_coord

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Blade_points_N(j,1,i) = kp  
Blade_points_X(j,1,i) = x_ur  
Blade_points_Y(j,1,i) = y_ur  
Blade_points_Z(j,1,i) = z_coord  
kp = kp + 1
```

```
K,kp,x_lr,y_lr,z_coord  
Blade_points_N(j,3,i) = kp  
Blade_points_X(j,3,i) = x_lr  
Blade_points_Y(j,3,i) = y_lr  
Blade_points_Z(j,3,i) = z_coord
```

```
kp = kp + 1  
*IF,x_c,EQ,0,THEN  
Blade_points_N(j,1,i) = Blade_points_N(j,2,i)  
Blade_points_N(j,3,i) = Blade_points_N(j,2,i)  
*ELSEIF,x_c,EQ,1,THEN  
Blade_points_N(j,1,i) = Blade_points_N(j,2,i)  
Blade_points_N(j,3,i) = Blade_points_N(j,2,i)  
*ENDIF  
x_c = x_c + x_cinc
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*ENDDO
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```
*ENDDO
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```
*DO,i,1,15  
j = 1  
splines_up = 0  
splines_c = 0  
splines_low = 0  
spline_done = 1  
FLST,3,101,3  
*DO,j,1,101  
FITEM,3,Blade_points_N(j,1,i)  
*ENDDO  
BSPLIS, ,P51X
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k_l = k_l + 1
Blade_lines_N(1,1,i) = k_l

!FLST,3,101,3
!DO,j,1,101
!FITEM,3,Blade_points_N(j,2,i)
!ENDDO
!BSPLIS, ,P51X
!k_l = k_l + 1
!Blade_lines_N(1,2,i) = k_l

```

```

FLST,3,101,3
DO,j,1,101
FITEM,3,Blade_points_N(j,3,i)
ENDDO
BSPLIS, ,P51X
k_l = k_l + 1
Blade_lines_N(1,3,i) = k_l
KPLOT
LPLOT
ENDDO

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DO,i,1,14
IF,i,EQ,1,THEN
AL,Blade_lines_N(1,1,i),Blade_lines_N(1,3,i)
Area_count = Area_count + 1
ENDIF
ASKIN,Blade_lines_N(1,1,i), Blade_lines_N(1,1,i+1)
Area_count = Area_count + 1
Area_info(2,1,i) = Area_count
ASKIN,Blade_lines_N(1,3,i), Blade_lines_N(1,3,i+1)
Area_count = Area_count + 1
Area_info(2,2,i) = Area_count

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IF,i+1,EQ,15,THEN
AL,Blade_lines_N(1,1,i+1),Blade_lines_N(1,3,i+1)
Area_count = Area_count + 1
EXIT
ENDIF

```

!KPLOT

!APLOT

***ENDDO**

Area_info(2,1,15) = Area_info(2,1,14)

Area_info(2,2,15) = Area_info(2,2,14)

VA,ALL !Criando Sólido a partir das áreas criadas no loop de desenho

VPLOT !Plotando o volume criado/