

Apéndice D Relación de ecuaciones incluidas en el apéndice C

```
init    vy = 0
flow    vy = +dt*ay
init    y = 0
flow    y = +dt*vy
aux     ay = (Fe+FH+Fc)/(k*d)-2*eps*vy-y
aux     A = Lb*Lel
aux     c = 3*ni*A^2/(2*PI*d^3)
aux     eps0 = c/(2*m*om0)
aux     eps1 = 0.5*eps0/eps0
aux     ER = ((1-mi1^2)/E1+(1-mi2^2)/E2)^(-1)
aux     f = s*f0
aux     f0 = om0/(2*PI)
aux     Fc = IF(vy>0,Fc1,Fc2)
aux     Fc1 = 4*PI*gamma*r1*0
aux     Fc2 = -4*PI*gamma*r2*SIGN(vy)
aux     Fe = IF(1-y>0,0.5*e0*A*V^2/((d*(g0/d+tel/d-y))^2),0.5*e0*A*V^2/((d*(g0/d+tel/d-1))^2))
aux     FH = IF(1-y>ao/d,Ha*R/(6*(d*(1-y))^2),Ha*R/(6*ao^2)-4*ER*SQRT(R*(d*(y-1+ao/d))^3))
aux     k = E1*wb*(tb/Lb)^3/(4*(1-mi1^2))
aux     m = 33*ro*Lb*tb*wb/140
aux     om0 = SQRT(k/m)
aux     r1 = IF(vy>0, IF(y>1-2*tl/d,IF(y<1.02,r10,0),0),0)
aux     r10 = 1.5*R*(d*(y-1)/(2*tl)+1)^2
aux     r2 = IF(vy<0, IF(y>1-2*R/d,IF(y<1.02,r20,0),0),0)
aux     r20 = 1.5*R*(d*(y-1)/(2*R)+1)^2
aux     V = Vo
aux     Vp = SQRT(8*k*(g0+tel)^3/(27*e0*A))
aux     z = IF(y>1,y-1,0)
const   ao = .17e-9
const   d = 1.5e-6
const   e0 = 8.85e-12
const   E1 = 77e9
const   E2 = 77e9
const   eps = 0.1
const   g0 = 1.5e-6
const   gamma = 72e-3
const   Ha = 6.4e-20
const   Lb = 200e-6
const   Lel = 180e-6
const   mi1 = .3
const   mi2 = 0.3
const   ni = 1.845e-6
const   R = 1e-6
const   ro = 2800
const   s = .2
const   tb = 1e-6
const   tel = 1e-7
const   tl = 2e-7
const   Vo = 1.5
const   wb = 30e-6
```