β

F

F

Front view

side view

Red material 1, orange material 2, blue is weld,

The red material is welded to the orange material, full penetration weld (thickness t)

α_x

W_0

α_y

L_0

T_{yx}

T_{xy}

Normal Stress = α_x = $F\cos\beta/(w_0 x t)$

Normal Stress = α_y = $F\cos\beta/(L_0 x t)$

Shear stress??

Can I assume that overall shear stress $T_{overall} = (T^2_{yx} + T^2_{xy})^{1/2}$

If I were to use von misses criterion? Is the following formula correct?

$Sy > \alpha^2_x + \alpha_x\,\alpha_y + \alpha^2_y + 3\,T^2_{overall}$