

Worm and worm wheel calculations

Outside diameter of worm = 22 mm

Pitch of the single start worm = 4.7 mm

Ratio of worm and worm wheel = 80:1

Face angle = 60°

Lead of worm = 4.7 mm

Addendum of worm = $0.3183 * 4.7 = 1.49601$ mm

Pitch diameter = $22 - 2 * 1.49601 = 19.00798$ mm

Depth of worm tooth = $0.6866 * \text{pitch} =$
 $0.6866 * 4.7 = 3.22702$ mm

Root diameter of worm = $22 - 2 * 3.22702 = 15.5496$ mm

Pitch diameter of wheel = $20 * 4.7 / 3.14 = 29.936$ mm

Center distance between worm and worm wheel =
22.7428 mm

Throat diameter of wheel = $29.936 + 2 * 1.49601 =$
32.928 mm

Throat radius of worm wheel = $11 - 2(1.49601) = 8.00798$
mm

Face width of wheel = $2.38p + 6.35 = 17.536$ mm

Helix angle of worm = 85.497°

Cutting angle of worm = 4.503°