



## Formulae and Conversions Quarter Turn Worm Gear Box

- 1 INPUT TORQUE  
= INPUT TORQUE ÷ MECHANICAL ADVANTAGE
- 2 OUTPUT TORQUE  
= INPUT TORQUE X MECHANICAL ADVANTAGE
- 3 MECHANICAL ADVANTAGE  
= OUTPUT TORQUE ÷ INPUT TORQUE
- 4 EFFICIENCY %  
= OUTPUT TORQUE X 100 ÷ INPUT TORQUE X GEAR RATIO
- 5 GEAR RATIO  
= NUMBER OF TURNS OF INPUT ÷ NUMBER OF TURNS OUTPUT
- 6 H.W. RIM EFFORT  
= INPUT TORQUE X 2 ÷ H.W DIAMETER
- 7 NUMBER OF TURNS TO CLOSE  
= GEAR RATIO ÷ 4
- 8 H.W. DIAMETER  
= INPUT TORQUE X 2 ÷ H.W. RIM EFFORT
- 9 INCH POUNDS TORQUE  
= NEWTON METERS X 8.849
- 10 FOOT POUNDS TORQUE  
= INCH POUNDS TORQUE ÷ 12

**TO DETERMINE THE HAND WHEEL DIAMETER BASED ON OUTPUT TORQUE AND DESIRED RIM EFFORT:-** DIVIDE THE OUTPUT TORQUE BY THE MECHANICAL ADVANTAGE AND MULTIPLY BY 2, THEN DIVIDE THAT RESULT BY THE RIM EFFORT YOU REQUIRE.

**TO DETERMINE THE RIM EFFORT FOR A GIVEN TORQUE OUTPUT BASED ON A KNOWN HAND WHEEL DIAMETER:-** DIVIDE THE OUTPUT TORQUE BY THE MECHANICAL ADVANTAGE, THEN MULTIPLY BY 2, THEN DIVIDE THAT RESULT BY THE HAND WHEEL DIAMETER.

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*Major Australian stockist of quarter turn worm gear boxes for valves stocking up to 45,000 Nm (32,500 ft lbs) and multi-turn gear boxes for rising stem gate and globe valves up to 5540 Nm (4,000 ft lbs). We sell world wide. View our stocklist at our website.*