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.

Major Australian supplier 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 website to visit our major stockists.

Valve Gearbox Quarter Turn R2 - AS