

## Weight-Up Calculation with Barite

$$\text{Lbs. of Barite Required (B)} = \left[ \frac{35.05 \times (W_f - W_I)}{35.05 - W_f} \right] \times V_I$$

Where: **B** = Amount of Barite to Add, lbs.  
**V<sub>I</sub>** = Starting Volume of Mud, gallons  
**W<sub>f</sub>** = Desired Mud Weight, lb/gal  
**W<sub>I</sub>** = Starting Mud Weight, lb/gal

**Rule of Thumb: For Weighted Drilling Fluids up to 12 lbs./gal using Barite.**  
For every 140 pounds of Barite added to 100 gallons (U.S.) the weight will rise 1 lb/gal  
Prior to weighting up fluid the Funnel Viscosity must be raised with AQUAGEL<sup>®</sup> or QUIK-GEL<sup>®</sup> to four times the final mud weight.

## Duplex & Triplex Mud Pump Calculations

(Dimensions in Inches) (1 oilfield barrel = 42 U.S. Gallons)

### Duplex

$$\text{Pump Output (bbl/stroke)} = \left[ \frac{(2 \times \text{Liner ID}^2 - \text{Rod Diameter}^2) \times \text{Stroke Length}}{6176.4} \right] \times \% \text{ Efficiency}$$

### Triplex

$$\text{Pump Output (bbl/stroke)} = \left[ (\text{Liner ID})^2 \times 0.000243 \times \text{Stroke Length} \right] \times \% \text{ Efficiency}$$

## Volume Output Per Revolution

$$\text{Gal/Rev} = \left( \frac{\left( \frac{\text{Piston Diameter}}{2} \right)^2 \times 3.1415 \times \text{Stroke Length} \times \text{Number of Pistons}}{231} \right)$$