**Pump Output (PO)**

**Triplex Pump**

**Formula 1**

PO (bbl/stk) = 0.000243 x (Linear Diameter (inch))2 x Stroke Length (inch)

Case : Determine the pump output (bbl/stk) at 100% efficiency for a

7 inch by 12 inch, triplex pump :

PO @ 10O% = 0.000243 x 72 x 12

= 0.142884 bbl/stk

Adjust the pump output for 95% efficiency

Decimal equivalent 95 ÷ 100 = 0.95

PO @ 95% = 0.142884 bbl/stk x 0.95

= 0.13574 bbl/stk

**Formula 2**

PO (gpm) = [(3 (D2 x 0.7854) S] 0.00411 x SPM

Where ;

D = linear diameter (inch)  
S = stroke 1ength (inch)  
SPM = strokes per minute

Case : Determine the pump output (gpm) for a 7-inch by 12-inch,

Triplex pump at 80 strokes per minute :

PO (gpm) = [3 (72 x 0.7854)12] 0.00411 x 80

= 1385.4456 x 0.00411 x 80

= 455.5 gpm

**Duplex Pump**

**Formula 1**

0.000324 x [(linear diameter (inch)]2 x (stroke length (inch)) = \_\_\_bbl/stk

0.000162 x (rod diameter (inch)) x (stroke length(inch)) = \_\_\_ bbl/stk

pump output @ 100% eff = \_\_\_\_\_\_\_\_\_\_\_ bbl/stk

Case : Determine the output (bbl/stk) of a 5-1/2 inch by 14-inch,

Duplex pump at 100% efficiency. Rod diameter = 2.0 inch :

0.000324 x 5,52 x 14 = 0.137214 bbl/stk

0.000162 x 2.02 x 14 = 0.009072 bbl/stk

pump output @ 100% eff. = 0.128142 bbl/stk

Adjust pump output for 85% efficiency :

Decimal equivalent = 85 ÷ 100 = 0.85

PO @ 85% = 0.128142 bbl/stk x 0.85

= 0.10892 bbl/stk

**Formula 2**

PO (bbl/stk) = 0.000162 x S [2(D)2 — d2]

Where ;

S = stroke length (inch)  
D = linear diameter (inch)  
d = rod diameter (inch)

Case : Determine the output (bbl/stk) of a 5-1/2-inch by 14-inch,

Duplex pump @ 100% efficiency. Rod diameter = 2.0 inch :

PO @ l00% = 0.000162 x 14 x [2 (5,5)2 — 22)  
 = 0.000162 x 14 x 56.5  
 = 0.128142 bbl/stk

Adjust pump output for 85% efficiency:

PO @ 85% = 0.128142 bbl/stk x 0.85

= 0.10892 bbl/stk