$Q = 3 . k^{\frac{1}{4}} . l^{\frac{1}{4}}$

$P_k = 1\,DA$, $P_l = 4\,DA$

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① $k_0 = 16$

$Q = 3(16)^{\frac{1}{4}} . l^{\frac{1}{4}}$

$\Rightarrow Q = 6 . l^{\frac{1}{4}} \Rightarrow l^{\frac{1}{4}} = \frac{Q}{6}$

$\Rightarrow l = \frac{Q^4}{1296}$

$CT = k + 4l$

$\Rightarrow CT = 16 + 4\left(\frac{Q^4}{1296}\right)$

$\Rightarrow \boxed{CT = \frac{1}{324} Q^4 + 16}$

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② $CT = \frac{1}{324} Q^4 + 16$

. $CF = 16$

. $CV = \frac{1}{324} Q^4$

. $Cm = \frac{CT}{Q} = \frac{1}{324} Q^3 + \frac{16}{Q}$

. $CFm = \frac{CF}{Q} = \frac{16}{Q}$

. $CVm = \frac{CV}{Q} = \frac{1}{324} . Q^3$

. $Cmg = CT' = \frac{1}{81} . Q^3$

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③ $\frac{Pmgk}{Pk} = \frac{Pmgl}{Pl}$

$\Rightarrow \frac{\frac{3}{4} k^{-\frac{3}{4}} l^{\frac{1}{4}}}{1} = \frac{\frac{3}{4} k^{\frac{1}{4}} l^{-\frac{3}{4}}}{4}$

$\Rightarrow \frac{\frac{3}{4} l^{\frac{1}{4}}}{k^{\frac{3}{4}}} = \frac{\frac{3}{4} k^{\frac{1}{4}}}{4 l^{\frac{3}{4}}}$

$\Rightarrow 3l = \frac{3}{4} k \Rightarrow \boxed{k = 4l}$

$Q = 3(4l)^{\frac{1}{4}} . l^{\frac{1}{4}}$

$\Rightarrow Q = 3 . 4^{\frac{1}{4}} . l^{\frac{1}{2}}$

$\Rightarrow l^{\frac{1}{2}} = \frac{Q}{3 . 4^{\frac{1}{4}}} \Rightarrow l = \frac{Q^2}{18}$

$CT = k + 4l$

$\Rightarrow CT = 4l + 4l = 8l$

$\Rightarrow CT = 8\left(\frac{Q^2}{18}\right)$

$\Rightarrow \boxed{CT = \frac{4}{9} . Q^2}$

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④ $CT = \frac{4}{9} . Q^2$

. $Cm = \frac{CT}{Q} = \frac{4}{9} Q$

. $Cmg = CT' = \frac{8}{9} Q$

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⑤ $\Pi = RT - CT$

$\Rightarrow \Pi = P . Q - \frac{4}{9} Q^2$

$\Rightarrow \Pi = (20)(30) - \frac{4}{9}(30)^2$

$\Rightarrow \Pi = 600 - 400$

$\Rightarrow \boxed{\Pi = 400\,DA}$