HILEY FORMULA

Hiley formula

For driven piles, calculations are usually based on the Hiley formula or on one of the many variations of this designed to give more accurate results or great case of calculation. The basic formula is:

\[ Ru = \frac{Whf}{S+C/2} \]

Where

- \( Ru \) = Ultimate driving capacity (ton)
- \( W \) = Weight of ram (ton)
- \( h \) = Effective height or stroke of all ram fall = actual height of fall of ram \( x \) a coefficient depending on type
- \( f \) = Efficiency of blow. This is dependent on the coefficient of restitution (which depends on the pile material and the type of dolly and packing used) and on the ratio of the weight of the pile to the weight of the ram
  \[ = \text{Ram weight} + (\text{coefficient of restitution})^2 \times \text{(total pile weight)} \]
  \[ \text{Ram weight} + \text{Total pile weight} \]
- \( S \) = Final Set or penetration of the pile per blow (mm/blow)
- \( C \) = Total temporary compression of dolly. This is the sum of the temporary compressions of the dolly and/or packing of the pile and of the ground.

This capacity of driven piles is generally a matter of experience on the part of the piling contractor though empirical formula has been devised by many. The number of variables and the range of variability are usually too many and too great for even reasonable measurement, but the piling contractor's estimate of the carrying capacity of one of his own piles is usually fairly accurate. This acceptability can be best examined by comparing ultimate bearing capacities derived by it with those determined by loading test. In general, the coefficient of restitution is between from 0.25 to 0.4 and the hydraulic pile hammer coefficient is 0.8 as know in the piling industries.

Note.

Bearing Capacity = 0.5xRu (Ultimate Driving Capacity)
Set Value is recommend NOT exceeding 10 blows per 25 mm penetration
If driving reaches 25 blows per 25 mm, the hammer must be stopped!!