

## Helical Strake Data Sheet for VIV Suppression

All values are applicable only for structural and geometric design of standard helical strakes offered by **VIV Solutions**. Non-standard helical strakes and helical strakes offered by other manufacturers may have considerably different performance characteristics. Tabular values are for smooth helical strakes in steady flow conditions.

**Table 1 – Helical Strake Added Mass Coefficient Data (0.25D Fin Height, Triple Start)**

Pitch per Start (D)	Added Mass Coefficient (C)
12-14	1.5-1.7
15-18	1.3-1.5

- Assumes 1.0 for mass coefficient for bare pipe
- D is defined as the diameter of the pipe plus the thickness of the strake shell

**Table 2 – Helical Strake Drag Coefficient Data**

Fin Height (D)	Pitch per Start (D)	Drag Coefficient (C <sub>d</sub> )
0.1	5	1.1 - 1.4
0.15	9 - 11	1.1 - 1.3
0.25	12 - 15	1.45 - 1.8
0.25	15 - 18	1.35 - 1.6

- Drag coefficient is very sensitive to strake effectiveness; some combinations of strake pitch and height listed above will be ineffective in certain situations; for example, strakes with low fin height can be extremely sensitive to the effects of marine growth
- For all tubular sizes, add 20-40% to drag coefficient for moderate marine growth
- For unsteady flows: at high KC numbers the added mass coefficients and drag coefficients will approach those below, but variations of at least 20 percent should be considered; at low to moderate KC numbers, the actual values for added mass coefficient and drag coefficient will be highly dependent upon the actual application.

**Table 3 – Helical Strake Suppression Efficiency Data**

Reynolds Number (Re)	Suppression Efficiency
100,000 - 1,500,000	0.93-0.98

- Suppression efficiency is defined as:  $1.00 - \left( \frac{RMS\ acceleration\ with\ suppression}{RMS\ acceleration\ without\ suppression} \right)$
- Suppression efficiency should be modestly decreased for small to moderate marine growth environments

**Table 4 – Helical Strake Damping Ratio**

Reynolds Number (Re)	Still Water Damping Ratio
100,000 - 1,500,000	5-15%

- Applicable for typical offshore helical strake applications