

VORTEXVINES: NEXT GENERATION HELICAL STRAKES



VortexVines™ represent the next generation of helical strakes, a tried-and-true solution for suppressing vortex-induced vibration (VIV) of subsea tubulars such as risers, tendons, and pipelines. Helical strakes are also a popular choice for structures in wind such as industrial chimney stacks and even car antennas.

Traditional helical strakes for subsea use consist of a cylindrical shell having three (3) fins protruding from the surface. These fins extend helically around the shell and are circumferentially equidistant from each other. While most helical strakes are quite effective at suppressing VIV, the presence of the shell causes increased weight, increased use of plastic, and increased cost.

VortexVines eliminate the shell associated with traditional helical strakes and, instead, consist only of fins. These fins still extend helically around the shell and are installed to be circumferentially equidistant from each other. VortexVines are designed for safe, efficient handling and are manufactured from virgin grade, UV-stabilized high-density polyethylene (HDPE). Each strake assembly typically includes three (3) strake fins and three (3) strapping bands, however other band densities and number of fins can be used. VortexVines™ are unique in that the three (3) fins are not physically connected by a plastic body, or shell, but rather they are integrated with the strapping bands to form a single assembly.

VortexVines work just like helical strakes in that the fins disrupt spanwise correlation of the vortex

shedding along a tubular's span, resulting in lower and randomly phased lift and drag forces. In terms of how they work, they are identical to traditional helical strakes (though the removal of the shell means that the fins can be slightly shorter and therefore VortexVines have a little less drag than traditional helical strakes). VortexVines can be used on virtually any sized tubular ranging from cables and umbilicals to production risers, to even tendons and drilling risers with buoyancy!

At VIV Solutions, each set of our patented VortexVines is designed for maximum performance in the field. The fins can be designed to have any desired height or pitch. Our engineers will work with you to determine the best geometric profile, manufacturing materials, and fastening mechanisms required for your application. We can even mix different types of helical strakes with each other or with fairings to provide an optimal VIV suppression solution for your project.

Common strake design parameters*:

Fin height = $0.25D$

Strake pitch = $12-20D$

Strake efficiency = 90% or greater

Drag coefficient = 1.3-1.7

**Values are dependent upon factors such as surface roughness, coverage density, etc.*

VIV Solutions
THE VIV SUPPRESSION EXPERTS

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