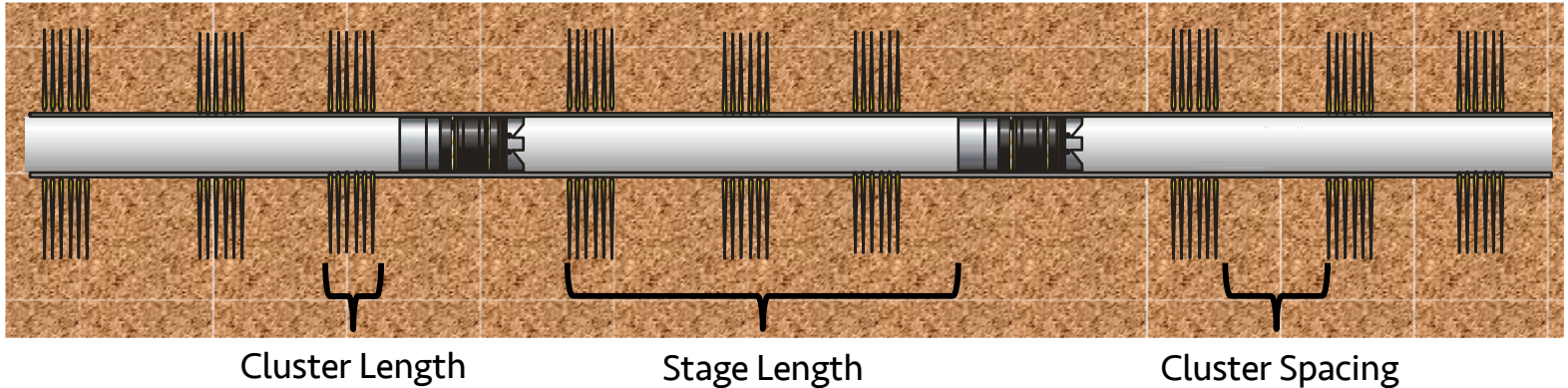


Perforating Terminology



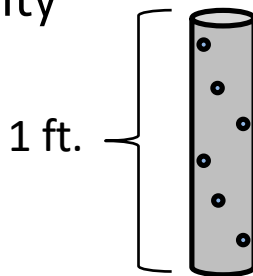
Stage Length: Distance from frac plug to top perforation, some companies may consider stage length as the distance from plug to plug

Cluster Length: Distance from bottom perforation to top perforation on a single perf gun

Cluster Spacing: Distance between clusters

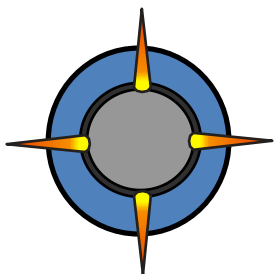
Perforation Density

Perforation Density: Described in terms of shots per foot (spf), total number of shots within a 1 foot span

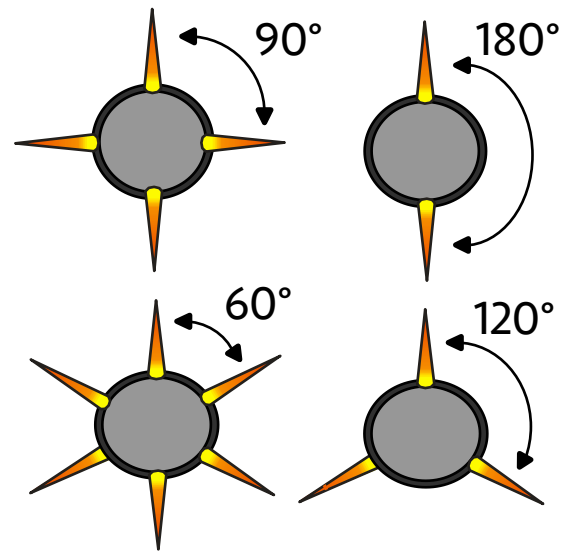


Entrance Hole

Entrance Hole: The diameter of the hole in the casing that the perforation gun creates



Phasing



Perforation Phasing: The angular separation between shots