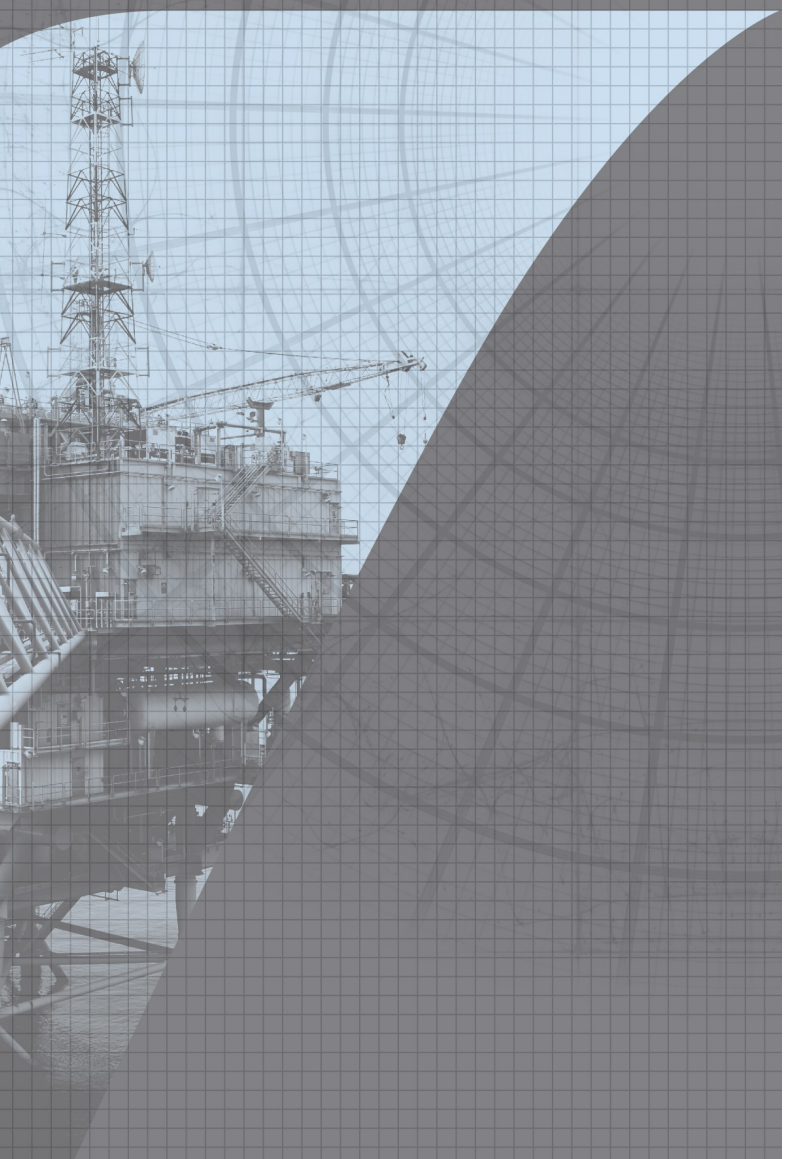
SPEX Freepoint Tool



The SPEX Offshore ( ) Ltd1-5/8” Freepoint Tool is an electro-mechanical tool designed to measure the amount of torque or stretch over a given length of tubing or drillpipe. It is deployed down hole on electric line to determine where the pipe is free.

The Freepoint Tool uses bow-springs or magnet sections to anchor itself within the pipe. The tool has its own freestanding portable panel which enables Freepoint, Casing Collar Locator (CCL) and back-off shooting capability which can be patched into any electric line unit.

Principle of Operation

The Freepoint Tool consists of three basic sections: the upper bow spring; a sensor; and the lower bow spring. Sinker bars, CCL and a 24” slack joint are run in conjunction with this tool. The sinker bars, either steel or tungsten, and the amount required are determined by varying factors, such as well conditions, mud weight and wireline size. The CCL is used to correctly set the tool between two pipe joints and to position the string shot in the case of a combination Freepoint and back-off run. The slack joint has a sliding mandrel with a 24” stroke which removes the weight of the line and sinker bars. This allows the Freepoint Tool to anchor to the wall of the pipe and the weight above will not force the tool to slip downhole or cause erroneous readings.

The bow-springs on each section are anchored on the bottom and have a sliding sleeve and lock. Once the bow-springs are set for the desired outer diameter, they are locked and anchored on the tool, allowing the springs to collapse when passing through restrictions going downhole or pulling out of hole. The outer diameter for the bow-spring settings depends on inner diameter of the pipe it is to be used in.

The sensor section is a pressure balanced assembly. This is achieved by sealing the housing to the sensor shaft with a rubber boot which allows movement of the shaft, filling the unit with light synthetic oil and vacuuming all the air from the unit. This prevents external or hydrostatic pressure from creating erroneous readings. When the tool is in operation, it is the distance between the pole pieces that accounts for the surface reading.

Changes in the inductance of the coil that is wound around the pole pieces occurs when the distance between each pole piece is varied. The Freepoint Tool can measure torque in the closed or open position and will read RHT or LHT, stretch and compression. The line length, or resistance of the line, has no effect on the tool.

Equipment Specification

Specification	
Tool OD	1.690” (41.3mm)
Tool length with slack joint closed	126.50”
Tool length with slack joint open	141.50”
Tensile strength (approx)	15,000 lb
Compression strength (approx)	2,000 lb
Minimum ID of pipe with standard bow spring	1.750”
Maximum ID of pipe with standard bow spring	5.625”
Maximum ID of pipe with magnetic anchor sections	13.00”
Total spring weight with bow spring anchor sections	63 lb
Total string weight with magnetic anchor sections	62 lb
Temperature Rating	500°F (260 °C) Max
Pressure Rating	21,000 psi Max

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