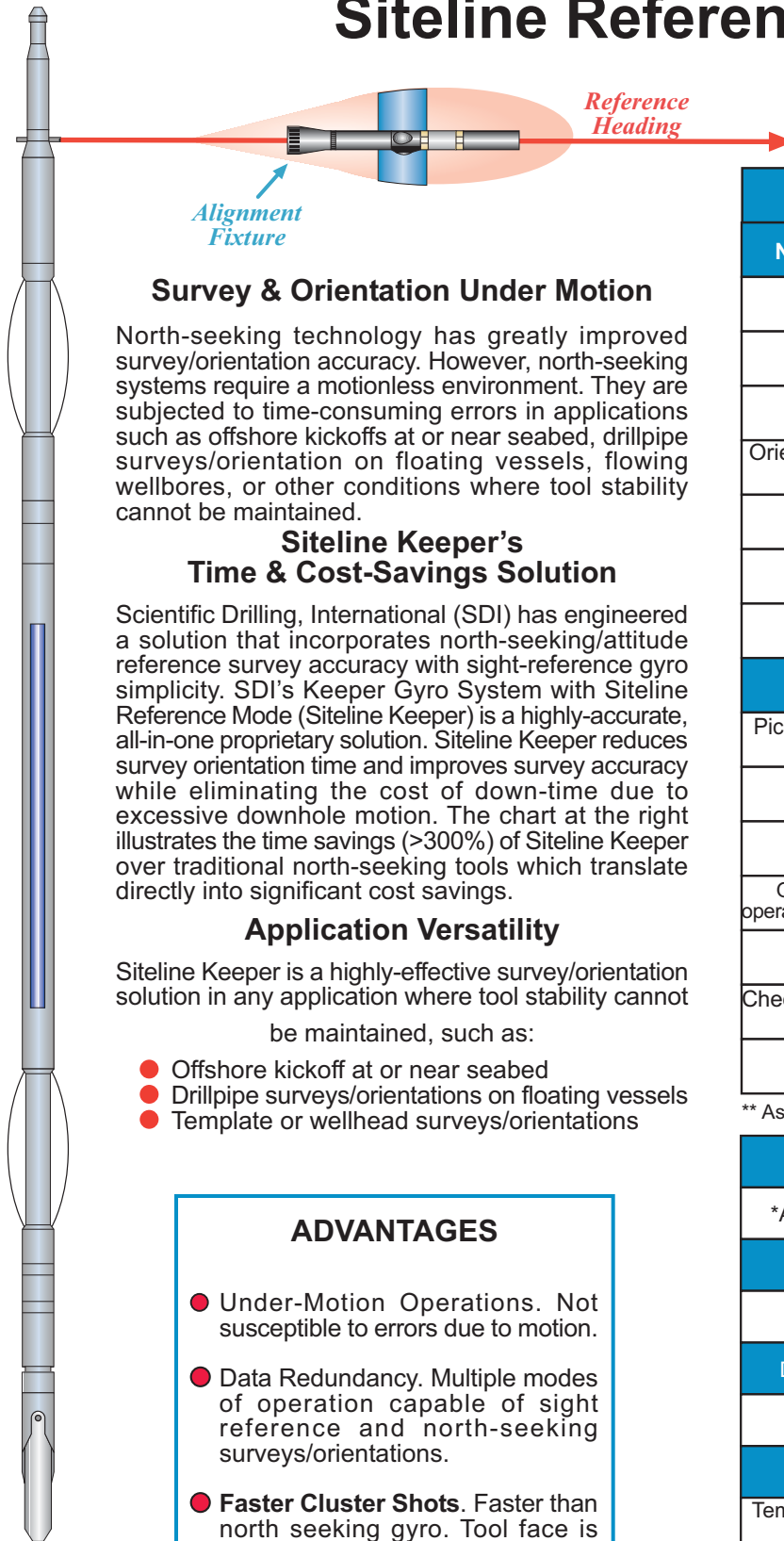


SITELINE KEEPER Gyro

Siteline Reference Mode



Survey & Orientation Under Motion

North-seeking technology has greatly improved survey/orientation accuracy. However, north-seeking systems require a motionless environment. They are subjected to time-consuming errors in applications such as offshore kickoffs at or near seabed, drillpipe surveys/orientation on floating vessels, flowing wellbores, or other conditions where tool stability cannot be maintained.

Siteline Keeper's Time & Cost-Savings Solution

Scientific Drilling, International (SDI) has engineered a solution that incorporates north-seeking/attitude reference survey accuracy with sight-reference gyro simplicity. SDI's Keeper Gyro System with Siteline Reference Mode (Siteline Keeper) is a highly-accurate, all-in-one proprietary solution. Siteline Keeper reduces survey orientation time and improves survey accuracy while eliminating the cost of down-time due to excessive downhole motion. The chart at the right illustrates the time savings (>300%) of Siteline Keeper over traditional north-seeking tools which translate directly into significant cost savings.

Application Versatility

Siteline Keeper is a highly-effective survey/orientation solution in any application where tool stability cannot be maintained, such as:

- Offshore kickoff at or near seabed
- Drillpipe surveys/orientations on floating vessels
- Template or wellhead surveys/orientations

ADVANTAGES

- Under-Motion Operations. Not susceptible to errors due to motion.
- Data Redundancy. Multiple modes of operation capable of sight reference and north-seeking surveys/orientations.
- **Faster Cluster Shots.** Faster than north seeking gyro. Tool face is tracked and displayed realtime on rig floor display (6 updates/second).

Orientation at Seabed Time Comparison	
North Seeking Compass	Minutes
Pick up tool:	0.50
Traverse in hole:	3.00
**Survey:	10.00
Orient pipe (blind operation, no toolface tracking):	3.00
Traverse out of hole:	3.00
Lay down tool:	0.50
TOTAL TIME:	20.00
SITELINE KEEPER	Minutes
Pick up tool & sight reference to known heading:	1.00
Traverse in hole:	3.00
Survey:	.5
Orient pipe (display realtime operation using toolface tracking):	1.00
Traverse out of hole:	3.00
Check sight reference and lay down tool:	1.00
TOTAL TIME:	9.5

** Assuming Calm Conditions

Technical Specifications			
*Accuracy:	Subject to well profile		
Pressure Rating:	20,000 psi (137,900 kPa)		
Survey Speed:	=600 ft/min (=150m/min)		
Diameter:	1.75" (4.5cm)	1.85" (4.7cm)	2.125" (5.4cm)
Length:	18 ft (5.5m)	19 ft (5.8m)	19 ft (5.8m)
Weight:	110 lbs (50kg)	120 lbs (54kg)	140 lbs (63kg)
Temperature Rating:	300°F	400°F*	400°F*
Battery Power:	Alkaline = 12 hours Lithium = 30 hours		

* Error ellipse calculations available upon request for individual well profiles.



Scientific Drilling