

CASE STUDY



CEN TEK S2®

ONSHORE



OKLAHOMA, USA

RUGGED CENTEK CENTRALIZERS ENABLE CASING ROTATION DURING CEMENTING OPERATIONS

Region:	Oklahoma
Location:	North Central

Country:	USA
Field:	Mississippian

THE CHALLENGE

Primary cementing operations in today's complicated deep well designs demand cement jobs that can provide life of the well zonal isolation. This level of cementing performance can only come from best practices, quality procedures, and the right casing equipment. To help enhance uniform annular cement placement casing movement is essential.

Casing reciprocation in the past has been performed for most cementing cases. Today's drilling technology with top drive rigs now gives the added opportunity of casing rotation, and with the correct cementing heads, can also include simultaneous reciprocation. Rotation also helps with fewer side effects on ECDs. With rotation operations being performed, the centralizers on the casing string have to be rugged enough to stand up to these procedures.

Typical standard welded hinged bow spring centralizers are not a first choice for this wellbore environment during primary cementing.



S2® Award Winning Innovation

- Designed for well applications and geometries for vertical, horizontal ERD, close tolerance, or under reamed well conditions
- API Rated
- Non-welded smooth bow profile overall
- Integral bow design for increased strength and performance
- Zero weak points
- Zero start and running force with exceptional restoring force
- Low friction coefficient
- Minimum rotational torque losses
- Minimize stall out effect
- Enhanced rotation due to optimized centralization

THE SOLUTION

Centek S2 Centralizers are tough enough and field proven to withstand today's complicated well designs and provide the performance to achieve cased well integrity. The unique non-welded one piece Centek design provides a flexible semi-rigid integral centralizer that can help reduce torque and drag in getting casing to bottom and can also aid in casing rotation. The unique high performance centralizer design eliminates most issues that deter the use of a standard bow spring centralizer product for casing rotation operations. Making sure the centralizers can withstand internal rotational torque from the casing is crucial to the centralizer's life cycle.

THE RESULT

The 3 well comparison on a North Central Oklahoma customer's drilling project in the Mississippian Field, yielded field proven results of the enhancement Centek centralizers could provide in getting to TD and aiding rotation during cementing to enhance successful primary cementing from casing shoe to the top of the liner. All three wells were completed at near 90 degrees horizontal.

Project Well 1

With the use of another manufacturer's 37 rigid positive stand-off centralizers, the liner got stuck 800ft off bottom along with higher pump pressure seen during cementing.

On the next well (Project Well 2) the customer chose Centek technology but was hesitant to increase the number of centralizers to be used due to the previous unsuccessful well's liner casing run with positive centralizers.

Project Well 2

Operator ran 4 1/2" 11.6# L80 liner casing with 42 Centek S2 centralizers (spaced every other joint) on 5,062ft of pipe. When TD was successfully reached the casing was rotated at 14,000ft lbs at 25rpm. The torque dropped to 11,000ft lbs by last 20 bbl of displacement. The casing was rotated approximately 445 revolutions during cementing. The liner was cemented successfully.

Project Well 3

Operator again ran a 4 1/2" 11.6# L80 liner/casing, but on this well ran 190 Centek S2 centralizers (3 per 2 joints) on 5,538ft of pipe. After successfully reaching TD, the casing was rotated at 25rpm with 9,800ft lbs torque. Rotation was stopped briefly to drop dart and then rotation was continued achieving 25rpm and 9,500ft lbs torque. Full circulation through job was achieved and cement was circulated to surface after setting the liner. Calculated about 1,900 revolutions were made during cementing.

Use of Centek S2 centralizers showed that casing rotation is easily achievable and will help improve the placement of the casing and cement. This type of success promotes improved bond logs and life of the well cementing integrity.

EXCELLENCE TO THE CORE

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