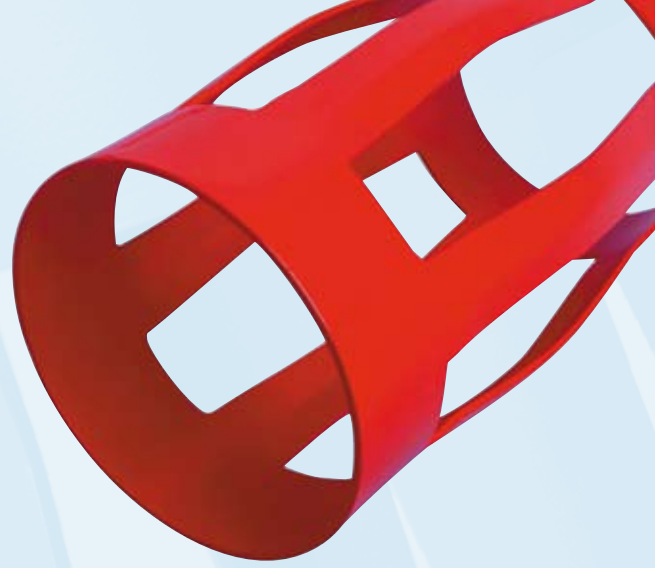




AN ENGINEERED DESIGN SOLUTION

# Applications



The **Centek S2** centraliser was originally designed for far reach (ERD), horizontal wells. Successful applications have prompted operators to push the boundaries of centralisation to far higher levels. As a result Centek now manufacture for the following applications:

- **Under-reamed sections in the UK and Norway**
- **Far reach ERD wells, worldwide**
- **Highly deviated / horizontal wells, worldwide**
- **Unconsolidated low formation pressure sections**
- **Vertical wells**

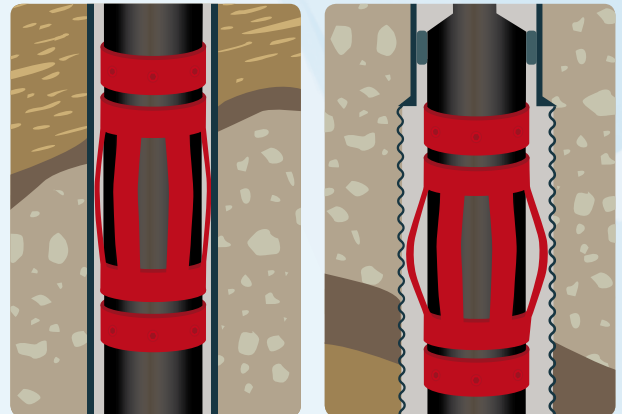
## UNDER-REAMED SECTION APPLICATION

Designed for specific applications in sections where the operator has used a bi-centre bit or hole opener to enlarge the open hole section from a previous bit run. The objective is to allow the operator the opportunity to utilise a larger diameter casing / liner thus allowing for larger completion assemblies or sand screens to be run. A larger open hole will also make getting to bottom easier and ease any ECD constraints.

The **Centek S2** centraliser has the same gauge as the under-reamed open hole. The unit must compress so as to traverse the long previous set casing where accumulated start forces are first measured and simulated to ensure the restoring force of the centraliser in the cased hole section is not greater than the string and block weight. Once clear of all restrictions the unit will regain its original OD size, thus giving outstanding stand off capabilities in the under-reamed section.

## FAR REACH/ERD WELLS

The standard **Centek S2** centraliser was deigned just for this purpose. Bow spring centralisers had a poor image, and to some extent still do, due to the fact that they were easily damaged on RIH when lateral loads of significance were applied. The method of construction and bow retention under load are the key areas of concern which Centek addressed successfully. The **Centek S2** is of single piece construction with bow and endband being integral. The unit is heat treated for additional strength and to meet the design parameters required. The unit is flexible to enable tight spots to be traversed yet robust enough to ensure high axial and lateral loads can be overcome. The unit offers an extremely high restoring force yet has no start or running force.



**CENTEK – BRINGING ENGINEERING INNOVATION TO THE INDUSTRY**



# Centek Centraliser

AN ENGINEERED DESIGN SOLUTION

The low friction unit will reduce drag on RIH yet offer high stand off criteria. The unit is not of a spiral bow design as this would create more problems than solve and it is not tapered in design either. Units are made to gauge to optimise the cementation job.

## HIGHLY DEVIATED / HORIZONTAL WELLS

Predominately in a horizontal or highly deviated well, gravity now works against the unit. No longer is a centraliser reliant on how good its stand-off criteria is, it is now dependent on spacing. Eliminating casing sag is important especially in small annuli section, yet keeping the pipe central to the bore hole is of paramount importance. With the pipe central, rotational torque is reduced. Pipe located centrally will also ensure no low points in the well, therefore good well clean out and good cementation occur on a regular basis. The **Centek S2** low friction unit achieves all of the above by being robust enough to get to bottom easily, reduce drag on RIH and act as fixed points to reduce casing sag. Unlike some other units it is not undersized in OD, rather the opposite, it is made to gauge to maximise the stand off potential.

## UNCONSOLIDATED LOW FORMATION PRESSURE SECTIONS

Designed for specific applications in sections where the compressive strength of the formation is deemed to be weak. Gouging of the formation or sinking into the formation is undesirable. Not only must the centraliser support the pipe it must exert a lower loading per bow/ blade than the actual compressive strength of the formation. Centek have successfully achieved this on wells below 1000 psi and also on wells below 250 psi compressive strength. As Centek design and manufacture in house, it allows the design engineers to experiment. The result was a centraliser similar in design yet a different bow shape. The end result on the worst case scenario was to reduce the load on the bow equal to that of half the formation compressive strength. The bow neither dug into the formation nor created gouges. The end result showed excellent bond logs where previously all had been unsuccessful.

## VERTICAL WELLS

The **Centek S2** centraliser was not designed to compete in the general market for verticals wells. Here very little load if any is applied to the bow and robustness or flexibility are not deemed as important by the operator. However, standard bow centralisers of the welded or interlocked variety still cause RIH issues. It is for this reason that customers are now turning to Centek to resolve their larger casing diameter issue of both RIH and cementation.



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