

# The No-Squeeze System™

From  
**RAY**  
Oil Tool Co.

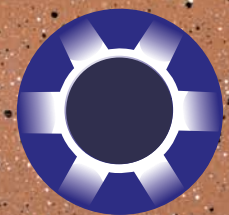
The Primary Source for  
Successful Cementing.

Complete coverage around the casing is the key to a successful primary cementing job. That's what you get with the No-Squeeze System from Ray Oil Tool.

The No-Squeeze System combines Ray Oil Tool's patented Stand-Off solid centralizers and the unique centralized 360° Up-Jet Tornado Float Shoe and collar. This provides positive casing/wellbore standoff for positive mud displacement and cement coverage.

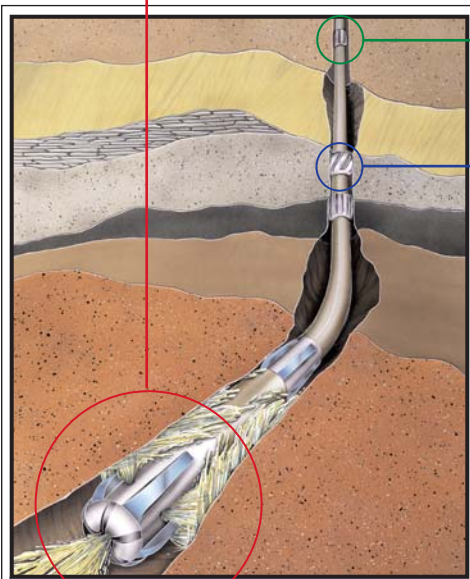
The Up-Jet Tornado Float Shoe is the first casing shoe designed to ensure 360° cement coverage.

With standoff and good fluid movement around the casing, channeling is avoided, hole cleaning is enhanced and 100 percent cement coverage can be obtained. *That means no remedial work. No remedial work means the job was done correct the first time.*



**STAND-OFF®**

# The No-Squeeze System™



## The Up-Jet Tornado™ Float Shoe

With standoff and the tornado up-jet effect, the Tornado up-jet washes past ledges and wellbore restriction, enhancing fluid circulation and gives you 360° cement coverage around the casing. The Tornado directs fluid circulation to the area of the wellbore where it is also needed – the narrow side of the casing.

The Tornado has demonstrated excellent results in historically difficult well cementing areas, horizontal wells and wells where differential pressures may be critical.

The solid straight blades of the Tornado not only guide the casing into the wellbore (sliding by ledges), but also reduce drag, eliminate scrapping, clogging between blades and provide proper standoff for primary cementing. The cemented centralized float shoe anchors the casing which will in turn minimize casing back-offs.

In conjunction with ROTCO Stand-Off® solid casing centralizers, the Tornado float shoe virtually eliminates the expensive shoe squeeze.

## Stand-Off® Solid Straight Blade Centralizer

The original “wellbore friendly” Ray Oil Tool Stand-Off straight blade design provides easy wellbore entry, clean fluid passage and maximum standoff between casing and wellbore. The Ray Oil Tool straight blade centralizer has eliminated squeeze jobs on thousands of wells worldwide – a track record second to none.

ROTCO solid centralizers provide maximum standoff even in horizontal wells plus allows rotation and reciprocation simultaneously. The ROTCO solid centralizers were the first centralizers to overcome wellbore lateral forces and give proper casing/wellbore standoff in any drilled wellbore.

The solid straight blade design promotes self-cleaning in the wellbore with less fluid restrictions and drag than bow centralizers and allows pipe to rotate and reciprocate freely inside the centralizer.

Ray Oil Tool centralizers are cast of a high grade metallic alloy with one-piece construction. This design features the lowest drag and wear and fluid restrictions and has high impact and shock resistance, high tensile and yield strengths and corrosion resistance.

The high grade metallic alloy centralizer can now be placed across the productive intervals allowing clean perforations without shot distortion. Casing deterioration due to electrolysis between dissimilar metals is non-existent because the metallic alloy is the softer sacrificial metal reducing casing collapse.

The centralizers are designed to slip easily on the pipe's pin end. They can run free on the joint or between stop rings, or can be secured to the casing with set screws.

## Stand-Off® Solid Spiral Blade Centralizer

The key to Ray Oil Tool's Stand-Off solid spiral centralizer is the smooth spiral 360° overlapping solid-vane design. It provides maximum wall contact and fluid swirl providing 360° cement coverage around the pipe.

The innovative design of the centralizer blades reduces balling between the blades, resulting in complete utilization of the spiral centralizer in swirling the cement. The blade design reduces drag and aides the casing in reaching TD.

**The successful record of the centralized 360° Up-Jet Float Shoe allow us to make the statement:**

**“If the cement has set up,  
there will be no need to squeeze.”**

NO-SQUEEZE SYSTEM™  
SAVES \$1 MILLION  
ON DEEPWATER PROJECT

For one operator, the use of the Ray Oil Tool No-Squeeze System eliminated a casing string, resulting in cost savings of more than \$1 Million.

The Up-jet Tornado™ Float Shoe provided a pumping rate of 11 bbl/min for this Gulf of Mexico deepwater (5,400') exploratory well in Mississippi Canyon. The operator was able to run 13 3/8" casing in a 17 1/2" hole to a casing depth of 7,800, a greater depth than anticipated.

All float equipment was centralized and results were excellent with the Tornado float shoe and float collar. The float collar, 50' of cement and the float shoe were drilled out in less than three hours. Shoe test pressure exceeded the required pressure.

This is just one of more than 2,500 No-Squeeze System success stories worldwide. If you are squeezing more than 1 in 50 shoes, Ray Oil Tool can save you money!

**RAY**  
OIL TOOL CO.



**STAND-OFF®**

The  
**Centralization  
Specialists**

**Ray Oil Tool Co., Inc.**

401 LA Highway 96  
P.O. Drawer 1078  
Broussard, LA  
70518-1078 USA  
337-837-4768  
WATS 800-937-4768  
email- rayoiltool@attmail.com

**Ray Oil Tool Co., Ltd.**

Unit 48 Howemoss Avenue  
Kirkhill Industrial Estate, Dyce  
Aberdeen, Scotland  
UK AB2 0GP  
Tel: 1224-773-313  
FAX: 1224-773-304  
e-mail: alan.male@rayoiltool.co.uk

**Ray Oil Tool De Venezuela, S.A.**

Calle Amraro Nº130 / Sector Las Morochas  
Ciudad Ojeda - Estado Zulia, Venezuela  
Telfs: (065) 313-902  
FAX (065) 313-802