EPIC™ Solutions
Essential Products for Integrity and Containment

Packer and Stage Cementing Systems for Life-of-Well Cement Integrity

EPIC ISOLATION TECHNOLOGIES
Proven protection against channeling and other cement sheath problems.

- Inflatable Casing Annulus Packers (CAPs)
- Cementing Port Collars: axially or rotationally manipulated
- HATCH Packer: an integrated premium metal-to-metal (MTM) sealing Port Collar and CAP
- FREECAP® swellable packer portfolio
EPIC™ Solutions Mitigate Risks to Personnel Safety and the Environment, Ensure Maximum Production and Reduce Remedial Cementing.

Field-proven TAM solutions enhance cement integrity to:

- Avoid critical consequences of gas or liquid migration
- Prevent or reduce costly and risky squeeze jobs
- Extend the productive life of your well
- Reduce decommissioning & abandonment costs
- Increase the value of your asset

TAM EPIC™ cement integrity and containment solutions are customized to your well environment. We provide engineered inflatable and swellable packer systems tailored to your specific needs to provide an enhanced level of protection rarely achieved with off-the-rack commoditized packers.

Improved primary and stage cementing

Our success has been built on avoiding remedial cementing by eliminating problems brought on by poor cement jobs. EPIC™ solutions give you an extra measure of protection against the problems that can keep you awake at night by helping to:

- Defend against well control incidents, blowouts and other safety hazards
- Avoid production losses due to crossflow or depleted zones
- Eliminate communication between water, oil and gas bearing formations
- Block ground water contamination
- Guard against sustained casing pressure (SCP)
- Prevent cement sheath failure during pressure testing and drilling operations
- Meet and exceed government regulations
- Mitigate future abandonment concerns

No one else has more expertise to ensure cement integrity than TAM International. We are the Packer Experts and we are here for you.

Many different tools and tool combinations can be used to deal with sustained casing pressure (SCP) and other problems due to shallow gas migration or shallow water influx.
**EPIC™ Solutions. It’s good to have the feeling of security.**

**TAM Inflatable Casing Annulus Packers (CAPs)** feature high expansion sealing elements custom-engineered for your geological and environmental conditions to enhance cementing success. In addition to providing a reliable, instantaneous annular seal to prevent primary gas migration, the CAP also serves as a dependable platform for stage cementing operations.

**CUSTOMIZED TAMCAP**

**Challenge:** One of the largest operators in the Canadian heavy oil industry had an ongoing problem of cement not setting up properly on the high side of the wellbore and significant gas was migrating to surface. Costly remedial cementing was repeatedly required for many of their wells.

**TAM Solution:** Run a gas detector while drilling to pinpoint gas zone then set customized TAMCAP packers above the zone.

**Result:** No gas migration since February 2011 (as this goes to press).

**Value added:** Significant cost savings in over 1,000 wells.

**CONTINGENCY STAGE CEMENTING**

**Challenge:** A well construction program on the North Slope in Alaska required full cement returns to surface to ensure permafrost, shallow gas, and/or corrosive zones were adequately isolated. This often required perforating and remedial cementing operations.

**TAM Solution:** Run a 9 5/8-in. Port Collar with premium MTM seals with the casing string. When returns are achieved at surface, drilling operations are continued without further operation of the PC. If returns are not achieved, the PC is actuated using a Combo Tool enabling a second stage cement job. There is no drill out, and MTM seals ensure casing integrity for life of the well.

**Result:** Major operators specify TAM cementing Port Collars for Alaska drilling operations.

**Value added:** Remedial cementing operations typically cost in excess of 15 times the cost of the PC.

**TAM Cementing Port Collars (PC)** can be run with or without CAP’s to enable high quality second-stage cementing operations without the need to drill out plugs and/or seats. Depending on size and operational requirements, a variety of configurations are available including:

- rotational or reciprocal actuation
- multi-functioning or locking sleeve
- elastomeric or premium metal-to-metal sealing elements
- manufactured to meet metallurgy & premium connection requirements with full bore ID

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**TAM HATCH Packer** features a patented combination of the TAM Casing Annulus Packer (CAP) and TAM Port Collar (PC) with an industry-exclusive metal-to-metal seal in the closing valve. The HATCH Packer and MTM seals are the optimum solution for premium Production Casing strings. The HATCH Packer provides 100% assurance that the valve system is isolated from any wellbore pressures after closure of the Port Collar and stage cementing are complete. No cement is left in the casing leaving the operator an unrestricted, full bore ID with no drill-out required. Construction costs can be cut by eliminating the need for intermediate casing strings.

**TAM FREECAP® Swellable Packers** are custom designed, built and tested for your specific well application. We evaluate your well environment and recommend one of our many application-specific polymer blend elements to ensure cement integrity or optimize your multi-zone completion. By custom designing and manufacturing our elements to your wellbore parameters, we eliminate the downhole risk of buying an off-the-shelf commodity-type packer. We also offer packers for operating temperatures up to 575°F (302°C). FREECAP packers have a remarkable 99.9% success rate with over 40,000 proven installations in the field. Outstanding customer service and the industry’s shortest product delivery times help you plan wells on a tight schedule.

**CASE HISTORY**

### HIGH INTEGRITY CEMENT JOB

**Challenge:** Perform two-stage cementing of production casing for gas migration control using no elastomeric sealing devices to maintain casing integrity.

**TAM Solution:** Position a 9 5/8-in. TAM HATCH Packer with metal-to-metal seals above shallow gas zones. First stage, primary cementing was performed, the plug bumped and the CAP inflated and set in 12 1/4-in. drilled hole. A Combo Tool was run on drillpipe to open the Port Collar, circulate in the annulus, and perform the second stage cementing. The Port Collar was closed and metal-to-metal seals were activated to block both the cementing ports and the CAP inflation valve ports.

**Result:** A high integrity cement job with no elastomeric seals in the production string.

**Value added:** Client saves over $700,000 per well on construction costs by eliminating the 13 3/8-in. casing string.

### SWELLABLE SOLUTIONS

**Challenge:** A major Gulf of Mexico operator sought a dependable, cost-effective means of ensuring wellbore integrity in critical deepwater wells.

**TAM Solution:** A 9 5/8-in FREECAP was installed below the liner top packer in the 13 5/8-in. lap to provide secondary, redundant liner top isolation. The 7-in. completion liner included a FREECAP packer set in the 9 5/8-in. lap as well as a second FREECAP installed above the payzone for enhanced cement integrity.

**Result:** Viable cement jobs with secondary mechanical barriers were achieved.

**Value added:** Incorporating FREECAPs into a cementing program ensures a viable cement job, avoiding the need for costly remediation operations.