TAM Single Set Inflatable Retrievable Packers

- Sets with pressure only
- Releases with straight pull or rotate
- Ideal for horizontal applications
- Sets in casing or open hole
- Runs on tubing, coiled tubing, drill pipe, or SlikPak™
- Packer, bridge plug, scab liner applications

TAM INTERNATIONAL
Inflatable and Swellable Packers

ISO 9001:2008 Certified Company
General Descriptions

The TAM Single Set product line enhances the advantages of the inflatable packer element with a positive sealing mechanism that requires only hydraulic pressure to set the packer. As pipe movement is not required to set the tool, it is ideal for running on slickline/electric line with SlikPak™, or with coiled tubing. It is also widely utilized for work string applications in highly deviated and horizontal wells.

The product line consists of the Single Set, Full Bore/Setting Head, Retrievable Plug and Retrievable Scab Liner tools as well as a variety of accessories to release from the packer, control flow through the tool and re-latch for retrieval.

All Single Set products are capable of a single set when run into the well and can be released for retrieval.

Superior Setting Mechanism Field Proven Reliability

Unlike traditional inflatable packer setting mechanisms, TAM Single Set tools do not rely on a check valve to retain inflation pressure. Oftentimes, debris can be caught in a check valve impairing the seal, causing the packer to deflate.

The TAM Single Set tools utilize a pressure actuated sliding sleeve with redundant seals that wipe any debris from the sealing surfaces when setting the packer. When the setting sleeve slides over the packer inflation ports, pressure is locked in the packer element. The setting superiority of the TAM Single Set product line has been proven in over 20 years of field applications.

The 7-1/2” OD Single Set Tools utilize TAM’s Safelok™ Valve System. For more information refer to the TAM 7-1/2” Single Set Brochure.

Inflation Elements

TAM offers four (4) types of inflatable elements to satisfy the wide range of application requirements, in vertical, horizontal, cased or open hole, 3:1 expansion capability and up to 300º F operating temperature. For specific element data and application analysis refer to the TAM Element Selection Brochure.

Simple Setting Procedure

Once the tool has been run to the desired depth, a ball or dart is pumped to a seat in the tool, diverting pressure applied to the work string into the inflation chamber. Shear pin settings, determined prior to running into the well, define the pressure at which the tool is locked in the set position.

Once the desired setting pressure is achieved by applying pressure to the work string, the set sleeve shifts down, closing the tool bypass and locking the tool in the inflated position. Differential pressure can be applied from either side of the packer without releasing the tool.

Flexible Configuration for Varying Applications

TAM Single Set products are our “work horse” tool line and can be easily configured for use in a wide variety of applications from single packers for Production, Treating or Squeezing to temporary or permanent Bridge Plugs. Multiple packers can be configured as scab liners for selective production control.

Each product provides various features that optimize the success of each application.

The Full Bore/Setting Head (FB-SH) tool provides the largest ID of any comparable tool OD in the industry and therefore is the typical selection for use in Scab Liner applications to modify a well’s production flow profile.

The Setting Head can be adapted to a releasable/retrievable Casing Annulus Packer.

The Retrieval Plug (RP) tool is specifically designed as a through-tubing Bridge Plug. The RP can be run on work string, slickline/electric line with SlikPak™, or with coiled tubing in highly deviated wells.

The Retrieval Scab (RS) tool provides a large ID and can be run in sections to allow installation of a long length assembly into a well with surface tubing pressure. This tool is also configured to run and/or retrieve on work string, slickline/electric line with SlikPak™, or with coiled tubing.

Optional Element Reinforcement Styles

Weave Type Element (IE)
- Multiple-set applications
- Sets in perforations, slots, fractures, or open hole
- Seldom leaves rubber in the hole

Weave Type Element (HE)
- Combination of Slat element for extrusion resistance, and Weave element for multi-set capabilities

Slat Type Element (TE & SE)
- Single and multi-set applications
- Exposed slats function as slips

Canted Slat Dual Layer (VE)
- Single and multi-set applications
- Cased or open hole
- Benefit of Slat type for HPHT
- Sets in perforations, slots, fractures, or open hole
Problem:
• Lower perforations producing excess water

Solution:
• Run Inflatable Bridge Plug on SlickPak set above lower zone
• Dump bail cement on top of plug

Problem:
• Collapsed casing
• Well requires production packer

Solution:
• Run Inflatable Single Set production packer and set below damaged or collapsed casing
Problem:
- Lower perforations producing excess water
- Requires squeezing

Solution:
- Run Inflatable Single Set packer on coiled tubing and set above lower perforations
- Squeeze as required

Problem:
- Shoe requires squeeze in large OD or odd sized casing in deep water drilling program

Solution:
- Run Inflatable Single Set on drill pipe and set near casing shoe
- Squeeze cement as required
Single Set Applications–Horizontal

Problem:
• Excess water production from middle of horizontal well

Solution:
• Run Inflatable Scab Liner and set across water producing section

Problem:
• Need to protect first lateral while drilling additional lateral

Solution:
• Run Inflatable Single Set as Bridge Plug and set near exit point of first lateral
• Retrieve packer after drilling additional lateral
Problem:
• Excess water production from toe of horizontal well

Solution:
• Run Inflatable Bridge Plug and set above toe of lateral, or run Inflatable Packer and squeeze cement if desired.

Problem:
• Heel of lateral requires isolation due to excessive gas (or water) production

Solution:
• Run Inflatable Full Bore Single Set below hydraulic set production packer
Single Set

Workstring Pull Release (rotate release optional)
Set Sleeve Shear Pin
Set Sleeve
Packer Inflation Port
Setting Ball
Choke Shear Pin
Choke
Inflation Element

Hydraulic Release (HR)

Rotationally locked – can transmit torque thru the tool.
Adjustable activation pressure via shear pin quantity.
Two release options:
- No ball release, which is achieved by pressuring the workstring.
- Ball release, which requires a ball to be dropped through the workstring to land on internal seat in tool.
Bypass ports are opened when the tool is released, allowing circulation of workstring being retrieved.

TAMCON (CN)

Can be used to latch onto & retrieve an inflatable packer.
Once the overshot with seal assembly is released, a fishable profile with latching lugs/pins is left above the set packer (for latching & retrieving at a later date).
Set down weight and left-hand torque to release.
Re-latching is automatic via J-track profile and latching lugs. The seal stack is engaged on O.D. of stem allowing pressure to be applied in tool string.
Tool can be shear pinned to prevent accidental disconnect when running.
TAMCONs have an optional hydraulic release profile cut in the top of the stem to allow running the tool in horizontal or deep water wells, without requiring left-hand rotation to release.
**Tool Sizes and Configurations**

**Tool Type:**
- SS – Single Set
- RP – Retrievable Plug
- RS – Retrievable Scab Liner
- SH – Setting Head

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<th>Tool OD (in)</th>
<th>Tool OD (mm)</th>
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<th>Minimum ID (in)</th>
<th>Minimum ID (mm)</th>
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*5.50 RS is available. Consult TAM for more information
*Element Range; 111/16” up to 141/2”

**Multiple-Release Options**

TAM Single Set tools can be released in a variety of methods depending on tool size. Releasing Mechanisms include rotation, straight pull and ball seat. The chart above defines the optional release mechanism available by tool size.