Thru-Tubing Workover Services

Run On:
- Drill Pipe
- Tubing
- Coil Tubing
- Electric Wireline
- Slickline

ISO 9001: 2008 Certified Company

TAM INTERNATIONAL
Inflatable and Swellable Packers
General Description
TAM International offers a complete array of inflatable packers and accessory tools for Thru-Tubing applications. Trained personnel and the latest technology in inflatable packer design provide a high success rate for applications up to a 3:1 expansion ratio.

Work String Options
- Drill Pipe
- Tubing
- Coil Tubing
- Electric Wireline
- Slickline

Packer Assembly Options
- Single Set Tools as:
  - Production Packer
  - Bridge Plug
  - Cement Retainer
  - Scab Liner
- Multiple Set Tools as:
  - Straddle Treat and Testing
  - Single Packer

Accessory Options
- Check Valves
- Circulating Subs
- Hydraulic Releases
- Fluid Control Valves
- Knuckle Joints
- Safety Joints
- Retrieving Tools

TAM Single Set Packer/Bridge Plug
The TAM Single Set tool can be run as a Bridge Plug or a packer with communication through the tool for production, squeezing, etc.

Inflation Elements
TAM offers four 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 350º F operating temperature.

TAM Wireline Set Packers
Inflatable Bridge Plugs, Production Packers or Scab Liners can be run and set using slickline (or electric wireline) for a variety of remedial applications.

Optional Element Reinforcement Styles

Weave Type Element (IE)
- Multi-set applications
- Sets in perforations, slots, fractures, or open hole
- Up to 2:1 expansion
- 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
- Cased hole
- Up to 3:1 expansion ratio
- High temperature capability
- 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

For more detailed information, request the SlikPak® Plus brochure.

For specific element data and application analysis refer to the TAM Element Selection Brochure.
**Problem:** Middle screen section producing water

**Solution:** Run Scab Liner on coil tubing or slickline
Isolate middle screen section

**Problem:** Failed screen producing sand

**Solution:** Run small OD screen with Inflatable Single Set above
Can be run on slickline or work string
**Problem:** Need to find a leak in tubing

**Solution:** Run Multiple Set CT Inflatable Packer
Set and test annulus until leak is located

**Problem:** Lower zone producing water
Squeeze required

**Solution:** Run Inflatable Single Set on coil tubing
Set between perforations and squeeze

*Thru-Tubing Workover Services*
**Problem:** Reduced productivity due to scale build-up in screen  
**Solution:** Run Multiple Set CT Inflatable Straddle  
               Acidize multiple zones

**Problem:** Lower zone producing water  
**Solution:** Run Retrievable Plug on slickline and set between perforations  
               Dump Bail cement on top of plug
**Problem:** Formation damage, requires acidizing

**Solution:** Selectively acidize multiple zones using Multiple Set straddle tool on coil tubing or work string

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**Problem:** High permeability water production

**Solution:** Run Cement Retainer on coil tubing
Inflate, squeeze and disconnect
Accessories

**Down Circulator**
A multiple open and close circulating valve operated by up-and-down movement of the work string. The valve is in the closed position when no down load is applied from the work string and open when work string weight is slacked off.

**CT Check Valve**
The CT Check Valve is a uniquely designed check valve used to prevent backflow up the coiled tubing. When pressure inside the CT is greater than the annulus pressure, an internal sleeve shifts down and holds the flapper open. This allows easy passage of setting balls as well as protects the flapper and seat from erosion during pumping operations.

**Bar-Ball Circulating Sub**
A one-shot circulating sub that is normally closed while running into the well and operating the inflatable tools. Placing a ball on seat opens a circulation path above the tools allowing circulation while pulling out of the well.

**Fluid Control Valve**
A differential pressure valve designed to support hydrostatic pressure above the inflatable tools. This valve is used in all operations where hydrostatic pressure inside and outside the work string is variable. The valve is bypassed when down weight is applied thus allowing higher rate treatments than competitive type valves.

**Fill Sub**
A one-shot circulating valve that allows circulation while running into the well. The circulation path is closed by placing a ball on seat, diverting pressure to the inflatable packer below.

**Hydraulic Release**
The Hydraulic Release provides a means to release from the inflatable tools through application of pressure or circulating a ball to seat in the HR. The design also provides torque control thus allowing rotational forces to be transmitted through the tool when used on a work string. TAM also provides Pulling Tools to latch into the Release Sub if the HR is activated and retrieval is desired. The Pulling Tool has a through bore, which allows circulation while washing down to the HR profile.

**Knuckle Joint**
Knuckle Joints are used on coil tubing and work string conveyed tools to allow the inflatable packer to self centralize when inflating. This accessory is also used for short radius horizontal wells to add flexibility to the tool string.

**Pump Thru Valve**
When squeeze cementing below an inflatable packer, a Pump Thru Valve can be added to prevent backflow of the cement when squeeze pressure is achieved. A spring-loaded ball and a flapper version are available in various sizes.
**Auto Choke**

A ball and prong configuration where the prong kicks the ball off seat when down movement is applied to the work string after inflation. This setting mechanism allows circulation while running into the well and prior to dropping the ball to the seat. It provides a means for multiple sets without dropping additional balls.

**Auto Piston**

No balls are dropped in this setting mechanism and the tool is always in either the inflating or treating position. This mechanism is designed for multiple set operations. It is particularly reliable in horizontal applications as there is no requirement to place a ball onto a seat.

**Collet Choke**

This mechanism allows multiple sets by circulating a ball to seat for each inflation cycle. It provides the largest flow capacity of any of the setting mechanisms.

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TAM International products are available through authorized agents and manufacturing representatives worldwide.

For a complete listing visit our website at [www.tamintl.com](http://www.tamintl.com)

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