



TAM INFLATABLE PACKER ELEMENT SELECTION

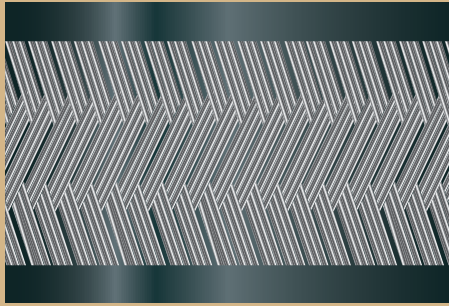
- Open and Cased Hole Applications
- Sizes 1.69" through 14.5" OD for 2" through 30" ID Applications



TAM INTERNATIONAL
Inflatable and Swellable Packers

ISO 9001: 2008 Certified Company

REINFORCEMENT STYLES

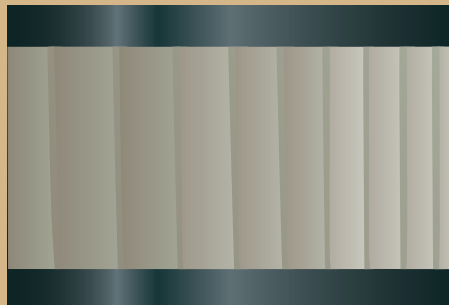


WEAVE TYPE ELEMENT (IE)

- Multi-set applications
- Sets in perforations, slots, fractures, or open hole
- Up to 2:1 expansion
- Seldom leaves rubber in the hole

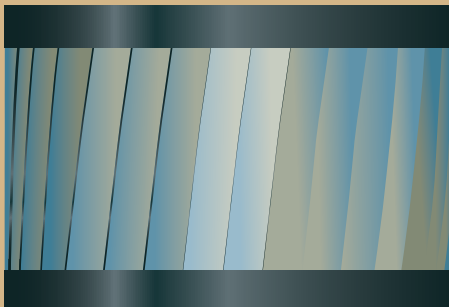
WEAVE TYPE ELEMENT (HE)

- 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
- Sets in perforations, slots, fractures, or open hole
- Cased or open hole
- Benefit of Slat type for HPHT

SELECTION PROCESS

To evaluate the inflatable element's reliability and differential pressure capacity, information from the TAM Inflatable Packer Application Data (IPAD) sheet is required. (see opposite page) The IPAD form is available on TAM's website, www.tamintl.com.

BASIC CONSTRUCTION

The critical component of all of our assemblies is the Inflation Element. TAM International offers three styles of fully reinforced inflatable element construction and a variety of elastomers to accommodate a wide range of downhole conditions. The expanding portion of the inflation element is long enough to provide a positive hydraulic seal inside pipe or open hole. Each model consists of an outer cover of fluid and erosion resistant elastomer, a reinforcing layer of high strength stainless steel slats (slat type element) or aircraft cable (weave type element) and an inner elastomer tube. The inner tube is the critical pressure holding member.

ELEMENT OD SELECTION

From the available standard sizes, select the largest OD element that will pass through the restriction with a minimum clearance of 5% between element OD and restriction ID.

The weave type construction (IE) is recommended for applications requiring multiple inflation cycles, retrievable operations, and when setting the element in perforations, slots, or open hole. The slat type construction (SE, VE or TE) is recommended for single set operations where the tool is released from the running string and must be capable of staying in position without sliding. Elastomer type should be reviewed for compatibility with produced well fluids and proposed treating fluids.

ELEMENT TYPE SELECTION

1. Calculate the Expansion Ratio (ER) by dividing the ID to set in by the selected element (not inflated) OD.
2. Enter Chart A at the calculated ER and draw a line vertically.
3. Enter at the Bottom Hole temperature (BHT) and draw a line horizontally. The point of the intersection of the two lines defines the most reliable type(s) of element construction.

EVALUATING DIFFERENTIAL PRESSURE CAPACITY

Using the appropriate Chart B, C, or D for the element type selected, draw a vertical line from the hole size (ID) to intersect the selected element OD curve. From this intersection point, draw a horizontal line to determine the rated differential working pressure for the element.

If the vertical line does not intersect the selected element OD curve, evaluate other construction types as defined in the prior selection process.

If the rated working pressure is less than the anticipated maximum differential pressure, either:

- Select another construction type and evaluate.
- Modify the application program to reduce the differential.
- Increase the ID of the minimum restriction.
- Evaluate the high risk of potential failure versus application options.

For casing annulus packer element information, please refer to the TAM Casing Annulus Packers and Accessories brochure.

IPAD

The Inflatable Packer Application Data Sheet (IPAD) must be completed before a technical proposal or quote is provided. The IPAD contains valuable data that outlines the scope and objective of each project.

EXAMPLE OF DATA FROM A TYPICAL IPAD

Minimum restriction to run through: 2.31"

Bottom hole temperature: 250°F

Casing ID to set in: 6.18"

Maximum expected differential pressure: 800 psi

2 1/8" TE selected from Chart A (2.9:1 Expansion Ratio)

Chart D shows 900 psi working pressure

CHART A

BOTTOM HOLE TEMPERATURE VS. EXPANSION RATIO

(Chart assumes water as well fluid)

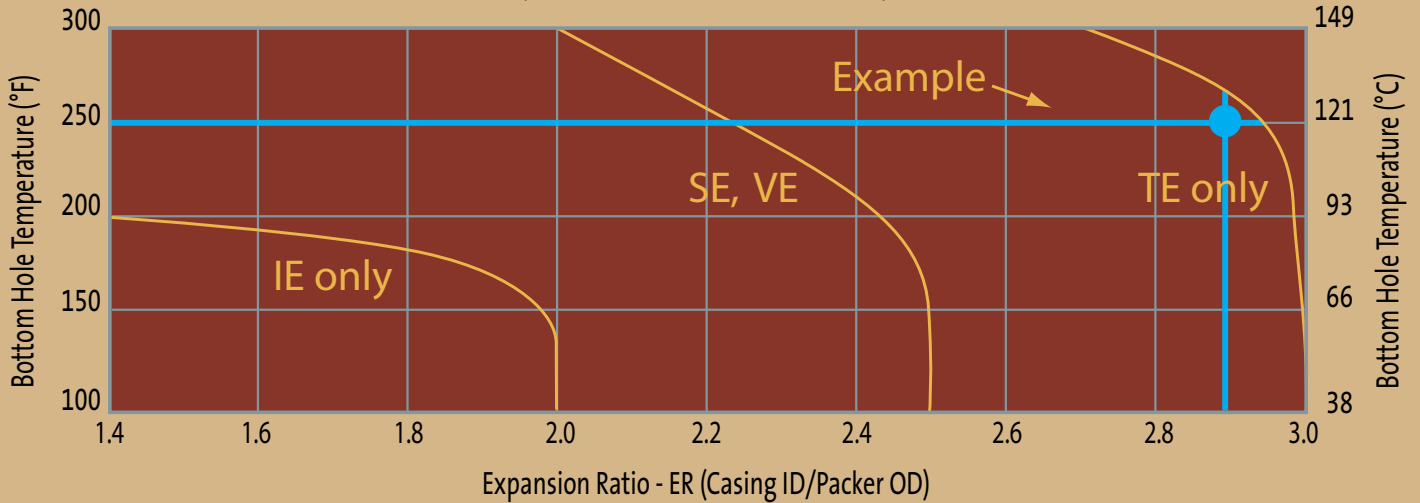


CHART B

WORKING PRESSURE VS. HOLE SIZE, WEAVE TYPE (IE OR HE) ELEMENTS

For differential pressure greater than 5,000 psi, contact a TAM representative

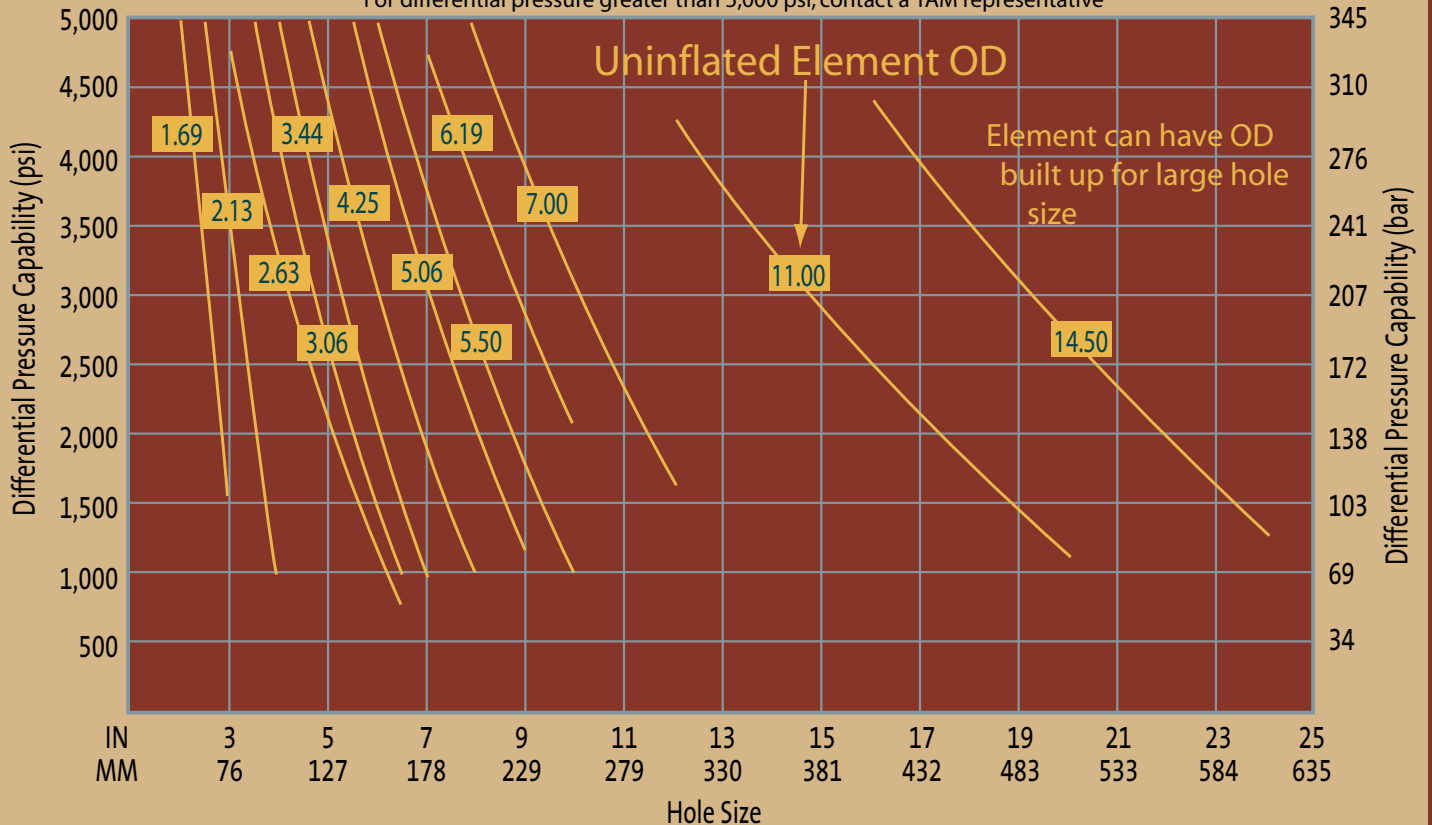


CHART C

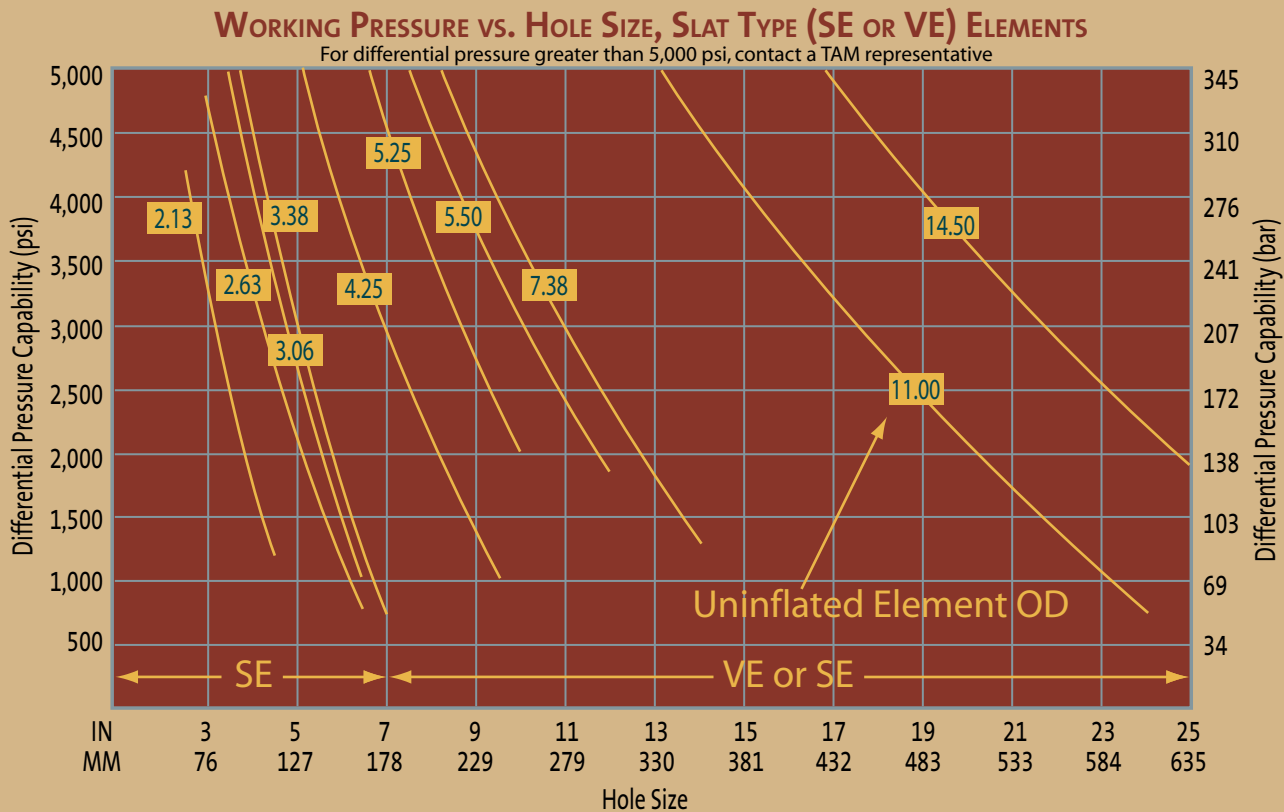


CHART D

