

TAM

Inflatable Packer Systems for Hydrological Applications

- Monitor Well Sampling
- Monitor Well Completion
- Grouting
- Hydrological Testing
- Hydrofracturing for Improved Water Well Yield
- Rock Stress Analysis (to 20,000 PSI)
- Casing/Mechanical Integrity Testing (Leak Locating)
- Zone Isolation
- Selective Zone Production



TAM INTERNATIONAL

“Setting New Standards for Inflatable Packers”



Corporate Profile

TAM International manufactures a wide range of inflatable packers and accessories for geotechnical and hydrological well testing, grouting and completion applications. Inflatable packers are available for borehole sizes ranging from 1½” through 30”, well depths to 25,000’ and a wide range of temperature and differential pressure capacities.

TAM has over 30 years of inflatable packer manufacturing and service experience. TAM’s Quality Program is certified to ISO 9000 standards.

A team of TAM personnel is available, worldwide, to assist you in the proper selection of an inflatable packer for your specific applications.

A Choice of Packer Types

TAM offers three distinct inflatable element designs to accommodate the wide range of applications in hole sizes, applied differential pressure, bottom hole temperature and project economics.

An inflatable packer can achieve higher expansion than conventional packers and is designed with a long seal length for open hole applications. The inflatable packer does not contain “slips” and therefore can be used to seal in PVC and stainless casing without marring the ID.

SD Inflatable Packers

The SD product line is the most economical tool available and is used in well conditions where the applied differential pressure is less than 500 psi (34 bar).

LI Inflatable Packers

The LI product line is rated for use in applications where applied differential pressure is less than 1,000 psi (68 bar).

HD Inflatable Packers

The HD product line is rated for well applications requiring high differential pressure capacity. Standard models are rated at 5,000 psi (340 bar) maximum applied differential pressure.

Exact ratings of each product are defined later in this brochure.

Selection Criteria

Packer Size:

In general, the largest packer that can be run in the hole should be used. The lower the expansion ratio (Inflated OD/Run-in OD), the higher the differential pressure rating as shown in the specific charts for each product line.

The charts provided do not take into account the effects of elevated temperature nor is the differential pressure rating based on the packer’s ability to resist movement, but rather its ability to seal at the rated pressure. TAM recommends that each application be reviewed by an experienced TAM specialist to assure the proper selection of the packer size and product type.

Inflation:

TAM inflatable packers are designed to be inflated with either gas or liquid. The optimum inflation medium to use depends on the nature of the operations and resources available.

Gas inflation is often used in deep, dry, or low fluid level holes. Because of the lack of hydrostatic pressure on the exterior of the packer element, once the gas pressure is released the inflation element can still deflate. Gas is also used as the inflation medium in applications where large temperature fluctuations are expected. Another advantage is gas inflation simplifies most operations.

Application Information Required:

In order for TAM to assist in the proper selection of an inflatable packer type and size, the following information is required.

1. Hole diameter at the proposed setting depth
2. Minimum restriction above setting depth
3. Expected differential pressure and temperature
4. Work string connection

SD and LI products are generally available Ex-Stock with same day shipping

TAM SD Fixed-End Inflatable Packers

For shallow operations, such as monitor wells, where downhole differential pressures do not exceed 500 psi (34 bar), the TAM SD packers are an economical choice. TAM SD packers feature a tough inflatable element designed for high elongation and tear resistance.

TAM SD packers are available in all standard sizes and can be easily run in straddle configurations.

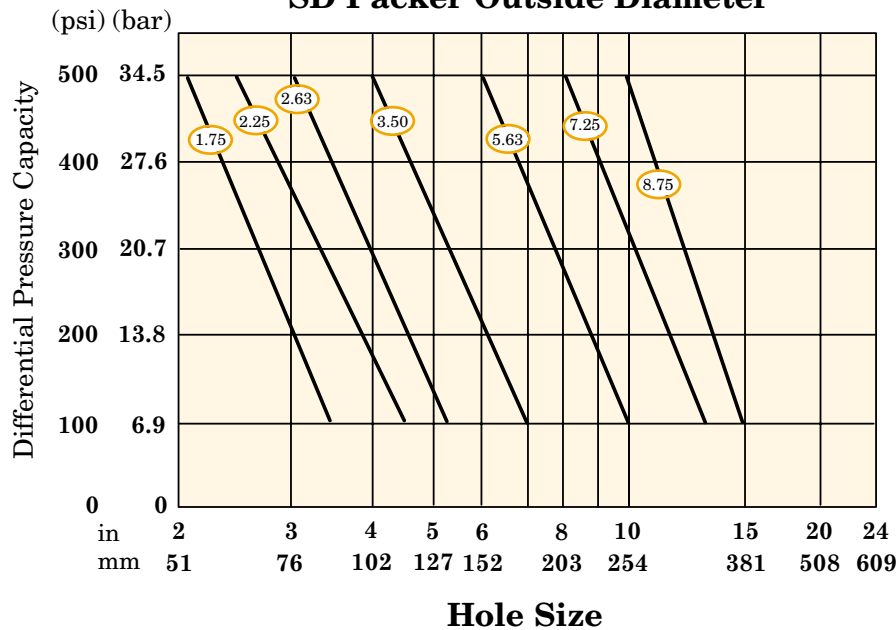
SD Single



SD Straddle



**Working Pressure vs. Hole Size,
SD Packer Outside Diameter**



IMPORTANT: The suggested ratings shown on the graph are not a measure of the packer's self-anchoring capability, which may be less than the suggested rated working pressure and may vary under certain circumstances. Consult TAM International for details.

SD Packer Dimensional Data

Part Number Single Packer	Part Number Straddle Packer	Packer O.D.		Packer I.D.		Thread Connection	Element Seal Length		Overall Single Packer Length		Overall Straddle Packer Length		Inflate Line Connection
		in.	mm	in.	mm		in.	mm	in.	mm			
175-SD-01	175-SD-05	1.75	44.5	0.74	18.8	3/4" NPT	16.00	406.4	34.19	868.4	68.75	1746.3	1/4" NPT
225-SD-01	225-SD-05	2.25	57.2	1.05	26.7	1" NPT	16.00	406.4	35.12	892.0	70.25	1784.4	1/4" NPT
263-SD-01	263-SD-05	2.63	66.8	1.38	35.1	1 1/4" NPT	16.00	406.4	34.81	884.2	70.63	1794.0	1/4" NPT
350-SD-01	350-SD-05	3.50	88.9	2.06	52.3	2" NPT	16.00	406.4	34.75	882.7	70.25	1784.4	1/4" NPT
563-SD-01	563-SD-05	5.63	143.0	4.03	102.4	4" NPT	18.00	457.2	39.50	1003.3	79.75	2025.7	1/4" NPT
725-SD-01	725-SD-05	7.25	184.2	5.05	128.3	5" NPT	19.25	488.9	40.75	1035.1	81.63	2073.3	1/4" NPT
875-SD-01	875-SD-05	8.75	222.3	5.94	150.9	6" NPT	20.50	520.7	43.13	1095.5	86.25	2190.8	1/4" NPT

Note: Longer element seal lengths are available on special order.
Maximum temperature rating is 150° F (66° C).
The inflation element is manufactured using a nitrile elastomer.

TAM LI Inflation Packers

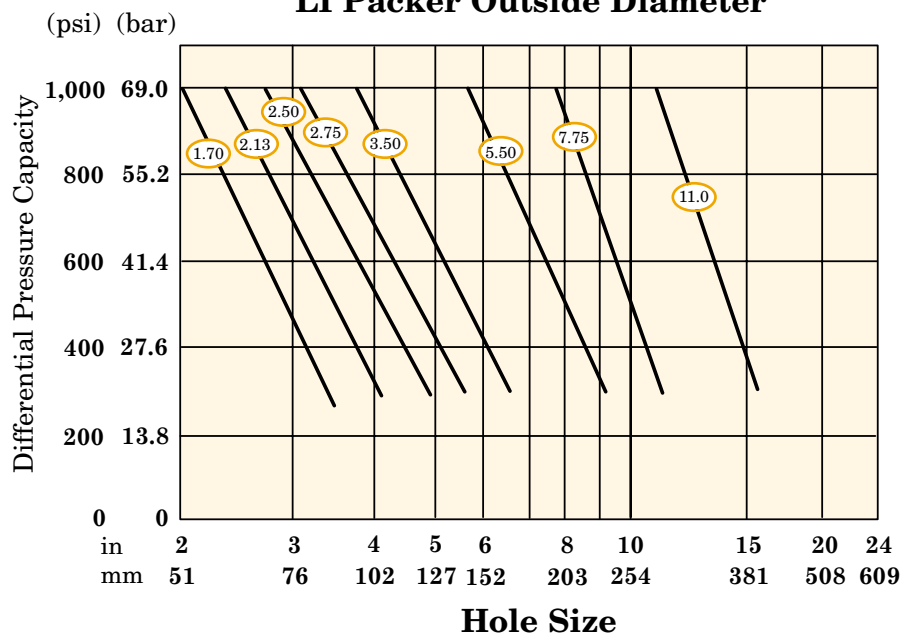
TAM LI packers are designed for reliability in downhole environments with differential pressures up to 1,000 psi (69 bar).

With durable steel reinforced inflation elements, these sliding-end packers are an excellent choice for repeated operation. If necessary, the packer element can be easily replaced. The TAM LI inflatable packers are available in all standard sizes as shown below.

LI Single LI Straddle



**Working Pressure vs. Hole Size,
LI Packer Outside Diameter**



* OD can be built up for larger hole sizes

IMPORTANT: The suggested ratings shown on the graph are not a measure of the packer's self-anchoring capability, which may be less than the suggested rated working pressure and may vary under certain circumstances. Consult TAM International for details.

LI Packer Dimensional Data

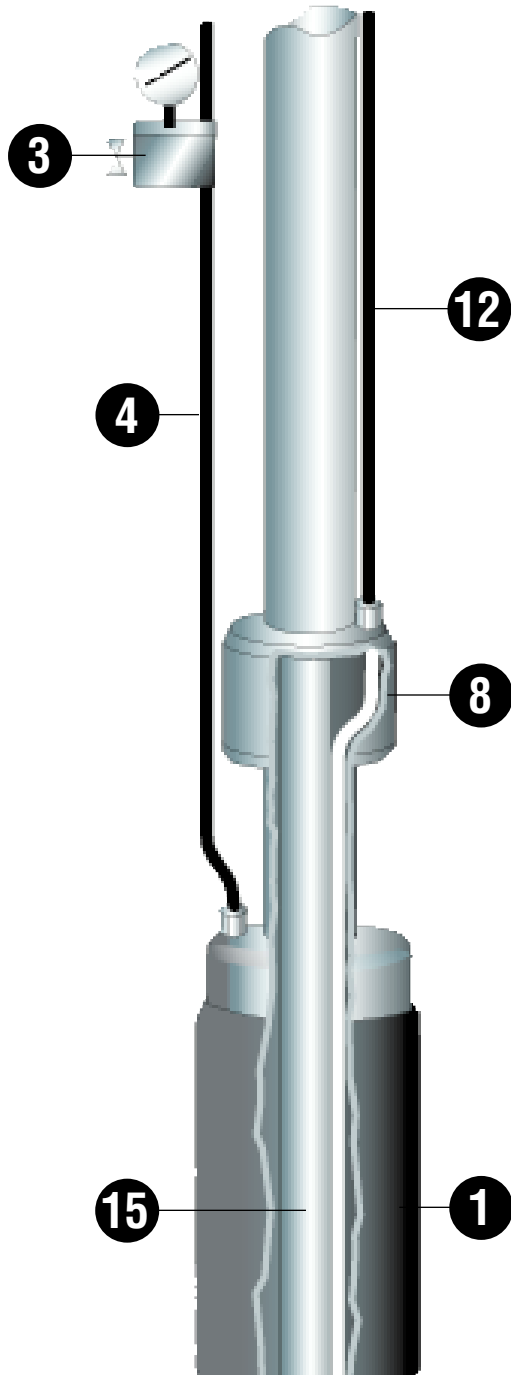
Part Number Single Packer	Part Number Straddle Packer	Packer O.D.		Packer I.D.		Thread Connection	Part Number Inflation Element	Inflation Element Seal Length		Overall Inflation Element Length		Overall Single Packer Length		Overall Straddle Packer Length		Inflate Line Connection
		in.	mm	in.	mm			in.	mm	in.	mm	in.	mm	in.	mm	
170-LI-01	170-LW-01	1.70	43.2	.51	13.0	3/4" NPT	170-LD-11	14.0	355.6	24.0	609.60	31.8	807.72	66.1	1678.94	1/4" NPT
213-LI-01	213-LW-01	2.13	54.1	.96	24.4	1" NPT	213-LD-11	25.0	642.2	36.0	914.40	51.8	1315.72	105.1	2667.00	1/4" NPT
250-LI-01	250-LW-01	2.50	63.5	.82	20.8	3/4" NPT	250-LD-11	23.0	584.2	35.0	889.00	49.1	1247.14	100.1	2540.00	1/4" NPT
275-LI-01	275-LW-01	2.75	69.9	1.28	32.5	1 1/4" NPT	275-LD-11	16.0	406.2	30.0	762.00	46.0	1168.40	91.7	2329.18	1/8" NPT
350-LI-01	350-LW-01	3.50	88.9	2.06	52.3	2" NPT	350-LD-11	16.0	406.4	30.0	762.00	44.5	1130.30	88.3	2242.82	1/4" NPT
550-LI-01	550-LW-01	5.50	139.7	3.07	78.0	3" NPT	550-LD-11	23.0	584.2	36.0	914.40	52.4	1330.96	104.8	2661.92	1/4" NPT
550-LI-02	550-LW-02	5.50	139.7	3.07	78.0	3" NPT	550-LD-12	42.0	1066.8	54.5	1384.30	63.2	1605.28	126.2	3205.48	1/4" NPT
775-LI-01	775-LW-01	7.75	196.9	5.05	128.3	5" NPT	775-LD-11	26.0	660.4	40.0	1016.00	70.8	1798.32	141.6	3596.64	1/4" NPT
11-LI-01	11-LW-01	11.00	279.4	7.82	198.6	8" NPT	11-LD-11	29.0	736.6	48.5	1231.90	77.0	1955.80	157.8	4008.12	1/4" NPT

Note: Rubber buildup on the diameter of the inflation element is available on special request.

The maximum temperature rating is 150° F (66° C).

The inflation element is manufactured using a nitrile elastomer.

Typical Inflatable Packer Assembly Accessories



1 and **2** upper and lower packers - (SD, LI or HD styles) use appropriate crossovers for thread to thread changes.

3 Inflation kit - appropriately sized and correct connectors, valve, gauge and fittings to assemble inflation tubing and to monitor packer pressure.

4 Inflation and monitoring tubing (nylon or stainless steel)

5 Monitoring tubing

6 Connectors provide seals for wire or tubes passing through holes in items **7**, **8**, **9**.

7 Feed thru sub

8 Pump feed thru sub - similar to item **7** and also providing a connection for the support of the pump

9 Ported bull plug - Plug at lower end of the bottom of the packer to permit access to the zone below the lower packer.

10 Shut in valve - isolates test zone from work string. Operated from surface by pressure, opens and shuts with minimal fluid displacement so that no squeeze pressure occurs in the test zone.

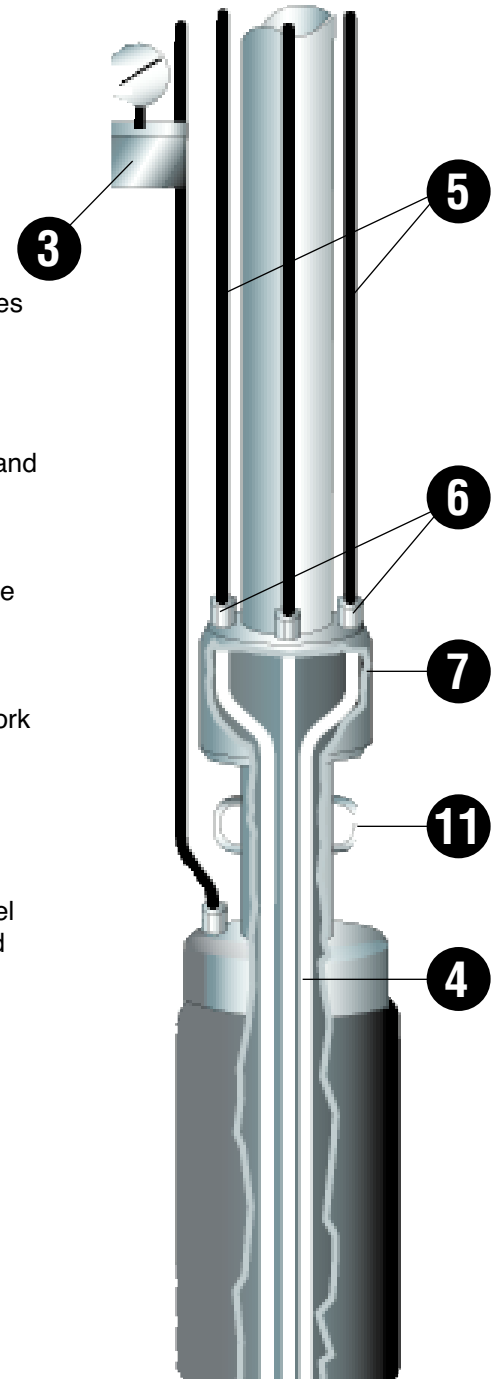
11 Lifting eyes welded to the packer mandrel to provide connection to the cable if lowered on such (OPTIONAL).

12 Pump cable - not supplied by TAM

13 Submersible pump and motor - not supplied by TAM

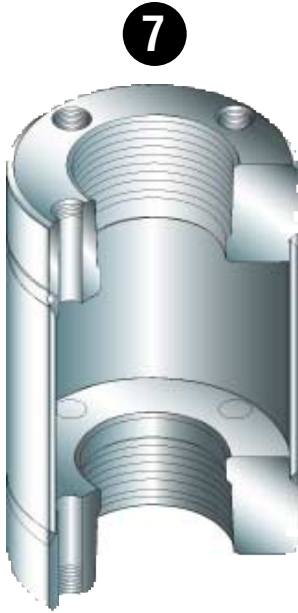
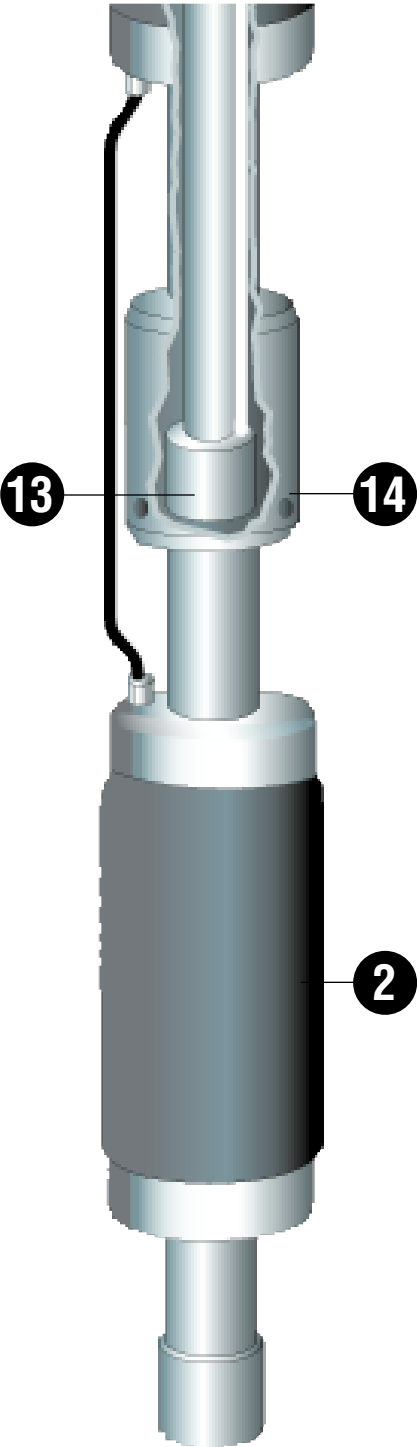
14 Pump chamber - Houses pump while providing string integrity - special order to meet requirements, may include extensions

15 Pump nipple may be supplied by TAM.

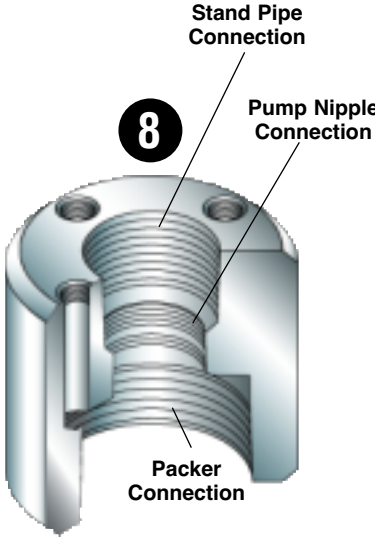


Feed Thru Sub

For hydrological workstring assemblies TAM International manufactures a line of Feed Thru connections. Both Feed Thru designs enable wiring and tubing to be run inside and outside of the packer assembly. TAM Feed Thru subs maintain workstring strength and protect the integrity of the electrical and tubing connections between components.



Feed Thru Sub



Pump Feed Thru

