



Titus Pump to Surface

The Titus Tools Pump to Surface pump is used when conventional PC and rod pump wells have proved to be very difficult or nearly impossible to produce efficiently. The usual candidate production wells are wells that are continually sanded in, had overburden collapse, or suffered from some other condition that had brought them to within one step of abandonment. Pump to surface equipment is a proven and well-known service solution. The Titus pump equipment is better able to pump bulk materials to the surface because the rod string was removed and replaced with a modified pump fitted directly to the tubing. This “open bore” approach allows sustained production of sand and other formation debris.



Benefits

- Used in multiple size casing
- Available in 4 ¼” & 3 ¼” O.D. Sizes
- Can be used with 3 ½”, 2 7/8” & 2 3/8” tubing.
- Large I.D. for easy coil tubing clean out.
- Travelling valve provides maximum positive suction at intake.
- Can produce large debris such as pyrite, rock, and shale from well with ease.
- Proven performance with over 5000 well installations
- Made of quality parts for long lasting run time between work overs.
- Easy to install for quick test wells for estimated production requirements
- Can produce efficiently from 3 cubic meters to over 100 cubic meters production per day.
- Available with stainless steel or nickel carbide balls and seats.
- High quality inner chrome lined barrel.
- Patent Protected #6,099,274





The Titus Pump to Surface Pump is provided for pumping subterranean fluids containing fine to large solids to surface. The pump comprises a pump barrel, piston and piston rod. The piston rod is suspended from reciprocating production tubing. The barrel is anchored in the casing of a well. A standing valve is located at the bottom of the pump barrel. The piston and travelling valve are located at the bottom of the piston rod (Kelly) for minimizing the dead-space between standing and travelling valves, creating maximum suction at intake. The tubing and pump is then stroked hydraulically at surface to lift debris and production solids to surface. When this pump is stroked upward the travelling valve closes, the standing valve opens allowing the barrel chamber to be filled with production. Stroking the pump downward forces the standing valve to close, opening the travelling valve pushing production debris upward to surface.

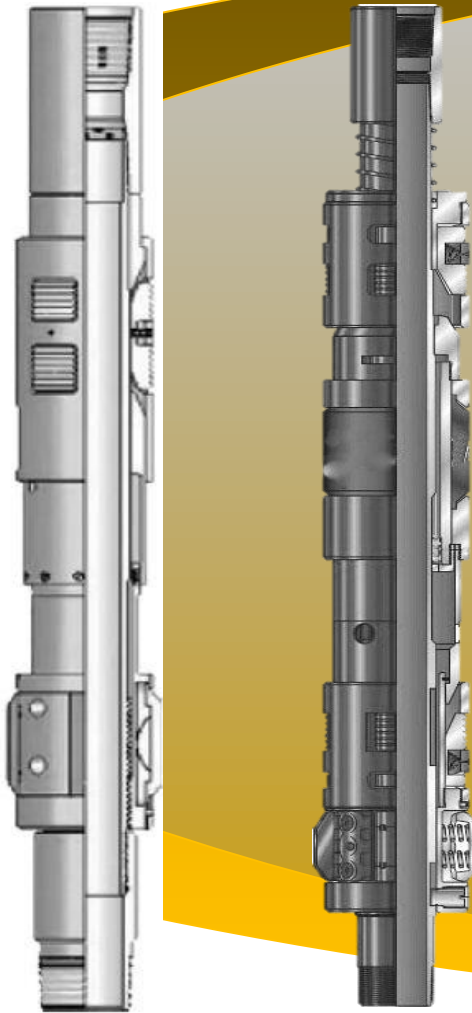


Titus C1 Anchor

The C1 Anchor Catcher is a Retrievable Double Grip Tubing Anchor designed to anchor the Tubing String in tension or compression. When installed with the proper amount of tubing tension, this anchor prevents movement of the Tubing String below the pump during Titus YELO pump to surface pumping operations.

This Anchor Catcher incorporates an emergency shear release which is easily adjustable in the field. Unless otherwise specified, anchors are furnished with a total of 22,000 daN (50,000 lbs) secondary release shears.

The C1 Anchor utilizes drag block backed up by Inconel Leaf Springs which results in more positive drag, thus reducing repair costs by at least 50% of the cost for repairing older drag spring designs. Requires 7 turns of tubing to set and unset.



Titus G6 Anchor

The G-6 anchor is a double-grip, retrievable, single string anchor designed for service in water-flooding and enhanced oil recovery. The double-grip feature allows the option of leaving tubing in compression or tension and makes the anchor suitable for use with the Titus YELO Pump to Surface. Requires ¼ turn of tubing to set and unset anchor. Unless otherwise specified, anchors are furnished with a total of 22,000 daN (50,000 lbs) secondary release shears.

Titus Pump to Surface Production Rate

Strokes per minute over 24 hours

Stroke Length	1.5 spm	2 spm	2.5 spm	3 spm	3.5 spm	4 spm
	1.5 ft. – 18"		9.50m3	11.88 m3	14.25 m3	16.62 m3
2 ft. – 24"	9.50 m3	12.68 m3	15.84 m3	19.00 m3	22.16 m3	25.34 m3
2.5 ft. – 30"	11.88 m3	15.84 m3	19.80 m3	23.76 m3	27.72 m3	31.60 m3
3 ft. – 36"	14.26 m3	19.00 m3	23.76 m3	28.50 m3	33.26 m3	38.00 m3
3.5 ft. – 42"	16.64 m3	22.18 m3	26.16 m3	33.26 m3	38.80 m3	44.32 m3
4 ft. – 48"	19.00 m3	25.34 m3	31.60 m3	38.00 m3	44.20 m3	50.50 m3
4.5 ft. – 54"	21.38 m3	28.51 m3	35.64 m3	42.76 m3	49.89 m3	56.85 m3
5 ft. – 60"	23.76 m3	31.68 m3	39.60 m3	47.52 m3	55.44 m3	63.05 m3
5.5 ft. – 66"	26.13 m3	34.84 m3	43.56 m3	52.27 m3	61.09 m3	69.25 m3
6 ft. – 72"	28.21 m3	38.01 m3	47.52 m3	57.02 m3	66.69 m3	76.03 m3
6.5 ft. – 78"	30.88 m3	41.18 m3	51.84 m3	61.77 m3	72.29 m3	82.36 m3
7 ft. – 84"	33.26 m3	44.35 m3	55.44 m3	66.52 m3	77.89 m3	88.70 m3
7.5 ft. – 90"	45.64 m3	47.52 m3	59.40 m3	71.28 m3	83.49 m3	95.04 m3

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