

# Nitrogen Services and Equipment

## SERVICE CAPABILITIES

### OVERVIEW

Halliburton pumping and nitrogen equipment is designed and manufactured to deliver the most reliable and versatile capabilities of the industry. From simple gas lift operations to purging miles of undersea pipeline, and everything in between, our global fleet is uniquely positioned to support any challenges throughout the life of a well or downstream infrastructure.

Our fleet includes a broad range of cryogenic pumping and transport equipment in both trailer and offshore skid mounted configurations, to accommodate any working environment. Additionally, we offer membrane Nitrogen equipment, capable of delivering high levels of purity for applications better suited for on-site N<sub>2</sub> generation.

Halliburton has integrated nitrogen services seamlessly alongside our trusted products and services so that you can plan, design and coordinate the use of nitrogen and our traditional services all in a single call.



### APPLICATIONS

- » **Stimulation** - helps speed treating fluid recovery, reducing rig time, and improving results. Nitrogen also can generate fracturing and acid foams — techniques where Halliburton paces the industry in research and practical applications
- » **Coiled tubing services** - aids in acid spotting, well cleanout, chemical placement, perforating, and squeeze cementing operations
- » **Completion** - helps bring in a well without swabbing, reducing completion time, and minimizing lost swab and blowout problems
- » **Pressure testing** - helps reveal leaks at half the time normally required for hydrostatic pressure testing
- » **Cementing** - helps overcome lost circulation problems by aerating the mud column
- » **Drill stem testing** - helps provide better control of unknown formation characteristics and improve test accuracy
- » **Lost circulation control** - reduces mud weight, helping reduce losses
- » **Hydra-jetting** - helps achieve up to 300 percent penetration increase
- » **Annulus insulator** - helps inhibit paraffin precipitation
- » **Stuck drill pipe** - lightens mud column and helps release differential sticking



### Cryogenic Nitrogen Pumping Unit Configurations

Available Configuration	Max Pressure (psi)	Pump Rate Min - Max (scfm)	On-Board Tank Capacity (scf)
MPU-180	10,000	250 - 3,000	180,000
TPU-270	15,000	250 - 4,500	225,000
TPU-340	15,000	350 - 5,700	225,000
TPU-400	15,000	350 - 6,500	180,000
TPU-720	12,000	800 - 12,000	270,000
SPU-60	10,000	100 - 800	N/A
SPU-180*	10,000	250 - 3,000	N/A
SPU-270*	15,000	250 - 4,500	N/A

### Cryogenic Nitrogen Storage and Transport Unit Configurations

Available Configuration	Tank Capacity
Standard N <sub>2</sub> Trailer	7,000 / 8,700 / 10,000 gal variants
N <sub>2</sub> Queen Trailer	16,000 gal
Skid Tank	3,000 gal
Gas Tube Trailer	85,000 scf



### Membrane Nitrogen Generation Unit Configurations

Max Pump Rate (scfm)	N <sub>2</sub> Purity at Max rate	Additional Features
6,200	95%	ATEX Class I Zone II DNV 2.7-1
5,200	96%	
4,200	97%	
3,300	98%	
2,250	99%	

For more information, contact your local Halliburton representative or visit us on the web at [www.halliburton.com](http://www.halliburton.com)

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