



COMPRESSION LEASING SERVICES

PROVIDING THE WORLD WITH HIGH PRESSURE BOOSTERS, COMPRESSORS, NITROGEN UNITS & PUMPS

Nitrogen Membrane Unit



- **Seven Part Process** - Air precooling, condensate and oil removal and separation, filtration and treatment of air, air reheating, membrane nitrogen and oxygen separation, purity control, flow measurement/ metering.
- **Increased Flexibility** - Works with after-cooled or non after-cooled feed air (screw) compressors.
- **Condensate and Oil Removal** - The air is cleaned of water and oil using a mesh pad scrubber, coarse coalescer, fine coalescer, and carbon filter for better membrane performance and longevity. All scrubbers, filters, and piping are ASME code welded 304SS to prevent damage to the membranes from rust.
- **No Bulk Loose Carbon** - Carbon filter has 2 large carbon elements, not bulk loose carbon, for better and safer/more user-friendly maintenance.
- **Air is Reheated** - The air is reheated to an optimal temperature by 50/50 ethylene glycol in a tube and shell heat exchanger. The air does not come into contact with hot heating elements and is therefore not a fire hazard.
- **Nitrogen Purity** - Can be controlled in 0.1% increments from 90% to 99.5%.
- **Cone Style Flow Meter** - Measures flow rate for the entire flow range of nitrogen, or air if the membrane units are in the bypass mode.

- **Nitrogen Purity Alarm Modes** - Mode 1 alerts the operator if purity falls below expectations, Mode 2 alerts the operator if purity falls below expectations, shuts the outlet, and diverts flow to vent for applications where no off-spec nitrogen can be allowed downstream.
- **Process Controllers** - Auto and hand modes control pre-cooler fan speed, air re-heat, and purity. Operation is simple and accessible to the user without the need for laptops or programming changes.
- **Custom Built Steel Enclosure** - The unit is enclosed in an insulated custom built steel enclosure, not a sea container, with access through all sides and roof via doors with latching hardware. The improved access is critical for needed maintenance operations, an item often overlooked in competitor's designs.
- **Locked Down Unit** - The unit can be locked down to an optional oilfield skid with bump guards using its ISO corner blocks and can include a generator to provide power, without sacrificing space for access and full door openings.
- **Alarm Beacon** - 2 different colors, 1 for fault/low purity, and 1 for low enclosure oxygen level for personnel protection.
- **Compact Footprint** - Length = 13', Width = 8', Height = 8' 6", 18,000 lbs. with integrated forklift slots for easy loading and unloading.

N2 Flow Rate SCFM Info*



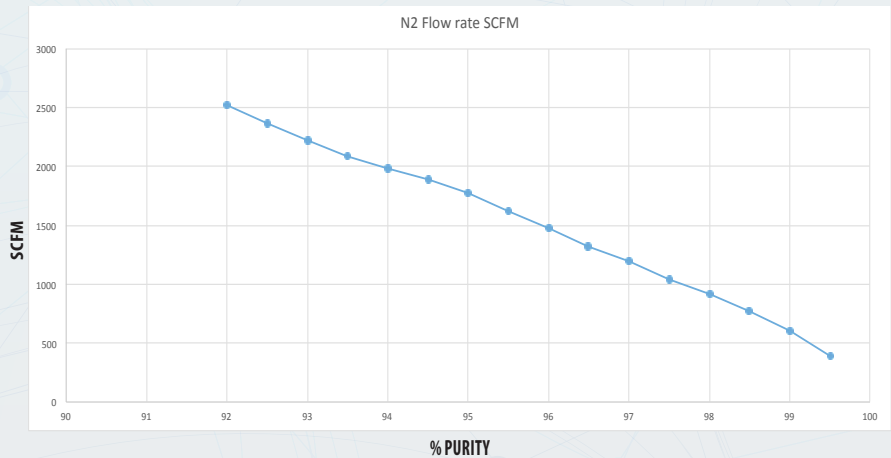
Shown with optional CLS-125KW diesel generator and tail-roll oilfield sub skid.

- 6,000 lbs. - Generator and fuel tank, setup full of fuel/oil.
- 5,000 lbs. - Sub skid.
- 29,000 lbs. - Total unit weight with sub skid and 125 KW generator and fuel tank full.

The N2 unit on the sub skid with generator dimensions are as follows: 25'-6.5" long, 8' wide, 9'-6" tall.

DESIGNED FOR APPROXIMATELY 900-4000 SCFM OF FEED AIR DEPENDING UPON CONDITIONS SUCH AS INLET PRESSURE AND INLET TEMPERATURE.

% Purity	N2 Flow Rate SCF/D	N2 Flow rate SCFM
99.5	565000	392
99	878000	610
98.5	1115000	774
98	1315000	913
97.5	1493000	1037
97	1715000	1191
96.5	1895000	1316
96	2118000	1471
95.5	2330000	1618
95	2550000	1771
94.5	2725000	1892
94	2855000	1983
93.5	3001000	2084
93	3193000	2217
92.5	3407000	2366
92	3629000	2520



* With adequate feed air at standard conditions of 320 PSI inlet of air from 90-180 F to the inlet of the unit, 130 at the membranes.

In 1998, Ben and Daron Gruner set out to reinvent the family's compressor business. Compression Leasing Services, Inc.(CLS) began by manufacturing unique and specialized compressors, and other oilfield and construction equipment one at a time. We quickly realized that there was a unique place in the compressor market that greatly needed more attention. This very small business grew rapidly because of superior quality, innovative products, customer focus, and superior customer service. Today, CLS is the World Leader in the manufacturing, sales, and rentals of High Pressure Booster Compressors, Nitrogen Units,

and Rotary Screw Compressor Products, with compressors sold in at least 15 different countries worldwide.

Our manufacturing facilities in Casper, Wyoming house some of the most state-of-the-art manufacturing equipment and processes used in the compressor fabrication business. Our team of quality Engineers, Draftsmen, Welders, Assembly Personnel, and Sales and Service people, make sure that our customers will have a positive and profitable experience when using our products to accomplish their tasks.

AVAILABLE FOR RENTAL, LEASE OR SALE.

MAIN LOCATION

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307.265.3242

BRANCH FACILITIES

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