

NL-84 LN₂ Generator



PERFORMANCE:

Liquefaction Rate:	10-12 lpd
Storage Capacity:	60 liters internal (included) 120 and 240 are optional
Evaporation Rate:	<0.8% per day
Nitrogen Purity:	>99% and D.P. <-70° C
Controls:	Fully automatic PLC controlled
Quiet:	72 dbA

REQUIREMENTS:

Compressed Air:	Included as a built-in unit
Cooling Water:	Air Cooled is standard
Environment:	10° C to 38° C <90% R.H. non-condensing
Power:	208/240 VAC 1Ø 50/60 Hz 4.2 kw

OPTIONS:

High Purity Generator:	iPSA made by KIC
Ext. Dewar Auto-fill:	Includes SOV, transfer line, and digital LN2 level sensor to keep dewar filled
External Dewars:	50, 60, 80, or 120 liters (optional)

PHYSICAL:

External Dewars:	500Ø x 1,250 ^H mm, 45 kg (80 liter) 470Ø x 1,150 ^H mm, 45 kg (50 liter)
Frame:	Powder Coated with NEMA 12 Enclosure
Liquefier:	1400 ^W x 740 ^D x 1,350 ^H mm, 380 kg

NL-170 and NL-280 Models produce 24 and 40 liters per day

SYSTEM DESCRIPTION:

A fully integrated and completely assembled Liquid Nitrogen Generator arrives at the customer's facility. No field work is required to bring the NL-84 into service. Within minutes, the generator is making high purity Nitrogen Gas and turning it into a liquid. Fully automatic controls manage the operation, production, and safety of the system. Digital bar graph displays of liquid levels for internal and external dewars track the inventory. Analog outputs and alarms offer the safety and security demanded by most laboratories and industrial customers.

Air is separated by a high efficiency double PSA bundle and transferred to the dewar where it is further purified and turned into LN₂. The internal cryocooler loop turns on and off, as required for fully automatic operation. The liquid is stored in the internal 60 liter tank and is ready for automatic or manual extraction.

All is assembled in the USA and is based on the KIC proprietary PSA and digital liquid level controls technology. For more information call or visit us on our web site. Our engineers will be glad to provide additional information and application notes pertaining to other gases and installation options.

SOLD AND SERVICED BY:

Manufactured by:

KI KELVIN
INTERNATIONAL
CORPORATION

12650 McManus Blvd * Newport News, VA 23602 * USA
Tel: +757-833-1011 Fax: +757-833-8600 www.kelvinic.com

Excellence in Cryogenics

Detailed Specifications for High Capacity Units

Ref	Specification	NL-170	NL-280
1	Capacity	24 liters of LN2 per day	40 liters of LN2 per day
2	Internal Storage	60 or 120 liter high efficiency storage dewar with less than 0.9% BOR	
3	Product Purity	Greater than 99%	
4	Cryogenic Engine	Fully Automatic G-M cold head with integral controls.	Fully Automatic G-M cold head with integral controls. Includes high efficiency frequency drive
5.1	Water Cooling	Standard offering when customer has a source of cooling water. Flow of 12 lpm at 22° C.	Standard offering when customer has a source of cooling water. Flow of 18 lpm at 22° C.
5.2	Air Cooling	Available as an option allowing operation in environments up to 35° C	
5.3	Optional Chiller	Attached to liquefier unit when ordered at time of fabrication. This will allow for continuous operation up to 45° C and includes storage tank, pump, and integrated controls.	
6	Enclosure and Assembly	Industrial assembly with full access to all maintenance components. High voltage components and controls are enclosed.	
7	External Tank	An optional external 50, 60 or 120 liter dewar on casters with liquid level sensor is available. Up to three external tanks can be automatically filled by the liquefier.	
8.1	Standard Dimensions	Air cooled or water cooled model without attached chiller: 142 ^W x 198 ^H x 138 ^D (cm) and an empty weight of 910 kg. Add 200 kg for cargo crate	Air cooled or water cooled model without attached chiller: 142 ^W x 198 ^H x 138 ^D (cm) and an empty weight of 1,040 kg. Add 200 kg for cargo crate
8.2	Dimensions with Chiller Option	Similar to NL-84 with an additional 60 kg of weight added.	Similar to NL-84 with an additional 90 kg of weight added.
9	Electrical Power	Three-Phase 208/230 VAC 50/60 Hz as a standard with 400 and 480 VAC available at time of order. 6-8 kW of power required	Three-Phase 208/230 VAC 50/60 Hz as a standard with 400 and 480 VAC available at time of order. 6-10 kW of power required
10	Power Protection	Phase loss and reversal protection is included with the controls. Alarm provides information to operator to correct this condition. Over and under voltage of 5% is covered with the standard units. For greater variance protection, contact KIC to provide specific requirements and additional protection.	
11	Compressed Air	Dry piston compressor sets are used to provide air to the internal PSA generator. These are air cooled and capable of 45° C operation. Automatic drains and receiver tank are also included. No oil removal is necessary.	Dry piston compressor sets are used to provide air to the internal PSA generator. These are air cooled and capable of 45° C operation. Automatic drains and receiver tank are also included. No oil removal is necessary.
12	Controls	Fully Automatic PLC based controls that provide the following features and benefits by way of the front panel touch screen: 1 Bar graph indication of internal and external dewar(s) level 2 Automatic Start Feature that resumes operation upon a power loss. 3 Liquefier goes into stand-by mode after tank is full reducing power. 4 Timed Run mode for operating at off-peak power times 5 Alarms to remind of maintenance and operational parameters 6 Automatic purging for maintaining purity	
13	Maintenance	Liquefier and Air Compressor and Chiller: Every 10,000 operational hours with a MTTM of one hour without losing inventory.	
14	Delivery Tube	Standard delivery tube is a flexible metal hose line with a 2-meter extension outside the liquefier.	
15	Installation	None required – Unit is fully assembled and tested.	
16	Start-up	Single push button starting will initiate running the liquefier. There are several user configurations that may need to be set by user or distributor at time of installation. This may take about 10 minutes upon initial start.	