

LPLN-20

(Box type) liquid nitrogen generator

LDH GAS SYSTEMS COMPANY LIMITED

LDH small box type liquid nitrogen machine adopts mixed refrigerant refrigeration MRJT process, based on a regenerative multi element mixed refrigerant throttling refrigeration cycle. From the ambient temperature to the target refrigeration temperature, pure refrigerant components with high, medium, and low boiling points are selected to form a multi element mixed refrigerant, achieving relay matching of effective refrigeration temperature range for each boiling point component. It is a refrigeration machine that can efficiently achieve a temperature range of -40~-196 °C.

Product Parameter

- Model: LPLN - 20
- Liquid nitrogen output: 20L/day
- Liquid nitrogen purity: $\geq 99\%$
- Liquid nitrogen pressure: Adjustable between 0.1 - 0.4mpa
- Power supply: 220V, 50Hz, 1P; 5KW
- Overall dimensions: 1250x860x1800mm
- Weight: 440kg
- Ambient temperature: 0 - 25°C
- Noise at 1 meter: ≤ 67 dB
- Compressed air: Built - in oil - free compressor and dryer with a dew point of - 60°C
- Nitrogen generator: PSA nitrogen generator
- Liquid nitrogen generator: Built - in air - cooled chiller (mixed refrigerant)
- Control system: PLC + Internet of Things
- System maintenance: APP remote operation, mobile phone receiving fault alarm information, WeChat alarm reminder, remote diagnosis
- Start - stop mode: One - key start - stop, liquid level start - stop, timing start - stop



Operational Principle

The compressed air passes through the oil-free air compressor, passes through cold and dry suction and filtration, enters the nitrogen generator, passes through the sterilizing filter, and generates sterile nitrogen with dew point-60°C. The sterile nitrogen enters the refrigerator and liquefaction into liquid nitrogen.



Telecontrol

The device interface can be remotely controlled remotely with the mobile phone



① One key start and stop

In order to enable you to control liquid nitrogen equipment anytime and anywhere, it is necessary to establish a remote access system that allows you to easily start or close production programs and effectively monitor the process of liquid nitrogen generation.

② Remote technical support

Technicians can remotely connect to user devices to solve technical issues, provide training, or troubleshoot, making technical support faster.

③ Remote file function

Remote view of the equipment history record, alarm record and other information, convenient for users to view the operation of the equipment in real time, according to timely adjust the production plan according to the actual demand.

④ Flexible and efficient cross-platform multi-end support

Break the device limit, support PC terminal, Android mobile terminal remote control devices.

○ The Internet of Things- -Application scenarios

scene	user	purpose	major function	model	instruction
Remote operation and maintenance	research staff	Remote debugging	Download and upload the HMI program, often used to update the HMI program	1-to-1	One person can only remotely debug one screen at the same time. One screen can only be remotely debug by one person at the same time
	research staff	Remote debugging	Download and upload the monitor PLC, and check the equipment failure		
	After-sales personnel	Remote debugging	VNC monitors the HMI screen, often used to adjust equipment parameters		
Single machine monitoring	administrator	data transmission	Monitoring, map, device grouping, permissions, and message push	Multi-to-1	One screen for multiple person monitoring



Low temperature treatment

Liquid nitrogen freezer

Ultra-low temperature cryotherapy with liquid nitrogen is actually an enhanced version of ice application

Liquid nitrogen is a kind of colorless, tasteless, not flammable and not easy to explode of the transparent liquid, the principle of its action mainly has the following points:

- ◇ Freeze the blood vessels to achieve hemostasis;
- ◇ Destruction of nerve terminal receptors, play the role of anesthesia and analgesic;
- ◇ Frozen can kill microorganisms, and has the effect of preventing and controlling infection;
- ◇ The destruction of the tissue by freezing can eventually lead to hypoxia and necrosis of the tissue at the lesion site, which in turn can also promote the regeneration of local tissue in the body, and play a role in accelerating the recovery.

Clinical medicine

Liquid nitrogen cryotherapy refers to a new technique in the field of modern therapeutics

The virus can be killed by extreme speed freezing, and people with severe cold urticaria cannot be treated with this method. Liquid nitrogen cryotherapy is a combined effect of cryobiology. Normal cells are extremely frozen and undergo irreversible damage.



NMR spectrometer

Based on the spin quantum number of non-zero nuclei in the external low-temperature superconducting strong magnetic field

Nuclear magnetic resonance (NMR) spectroscopy

To of organic compounds



Electronic industry application

- ① superconducting skills
- ② Manufacturing and detection of electronic components
- ③ Low-temperature ball grinding skills
- ④ Green cutting skills
- ⑤ Other application categories of liquid nitrogen



○ Liquid nitrogen was selected

Due to its faster cooling speed compared to other methods and no chemical reactions with other substances, it greatly reduces space and provides a dry atmosphere. It is environmentally friendly (liquid nitrogen is directly evaporated into gas and returned to the atmosphere without leaving any pollution), making it simple and convenient to use.

