

# LIQUID NITROGEN DOSER

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## Brief Introduction



### Best LN2 Application System in Korea

CVS has committed itself to developing machines for beverages and aluminum extrusion mold cooling systems with experience in developing various beverage-related equipment and technologies that require high vacuum insulation for extended periods of time



Founded in

**2009**

Design, R&D, Manufacture

- LN2 Doser
- Aluminum Extrusion Mold Liquid Nitrogen Cooling System
- Mini LN2 Doser
- Relief Valve, Vacuum Pipe

Headquarter Located in

14-8, Gimpo-daero 1750beon-gil,  
Yangchon-eup, Gimpo-si, Gyeonggi-do,  
Republic of Korea, CVS Co., Ltd.

## History of CVS

2010

Wool Beverage Co., Ltd.  
2 LN2 Doser  
Production and Installation

2012

OKF Co., Ltd.  
LN2 Doser  
Production and Installation

2014

China Hebei Province Langfang  
Sunrise  
LN2 Doser  
Production and Installation

OKF Co., Ltd.  
LN2 Doser  
Production and Installation

2016

China Hebei Province Langfang  
Sunrise  
LN2 Doser  
production and installation

Wool Beverage Co., Ltd.  
2 LN2 Doser  
Production and Installation

OKF Co., Ltd.  
LN2 Doser  
Production and Installation

2019

Dawon Light Metal  
Aluminum Extrusion Mold Liquid  
Nitrogen Cooling System  
production and installation

Korea Telecommunications Research  
Institute  
Manufacture and installation of HALT  
equipment liquid nitrogen supply pipe

Linno Aluminum Co., Ltd.  
Aluminum Extrusion Mold Liquid  
Nitrogen Cooling System  
production and installation

2021

Daeju Industry  
LN2 Doser  
Production and Installation

Hite Jinro  
Lab use LN2 Doser  
Production and Installation

Prax Coffee  
LN2 Doser  
production and installation

OKF Co., Ltd.  
LN2 Doser  
Production and Installation

2011

OKF Co., Ltd.  
2 LN2 Doser  
Production and Installation

2013

China Taiyuan  
LN2 Doser  
Production and Installation

Coca-Cola Korean drink  
LN2 Doser  
Production and Installation

2015

OKF Co., Ltd.  
2 LN2 Doser  
Production and Installation

Dongwon F&B  
2 LN2 Doser  
Production and Installation

2018

Daeil Co., Ltd.  
US CRYOTECH Doser Repair

Okdong Co., Ltd.  
Aluminum Extrusion Mold Liquid  
Nitrogen Cooling System  
production and installation

2020

Naturecell Co., Ltd.  
2 LN2 Doser  
Production and Installation

Ilhwa Co., Ltd.  
LN2 Doser  
Production and Installation

O2 Healthcare  
5HEAD Liquid Oxygen Doser and  
Vacuum Pipe

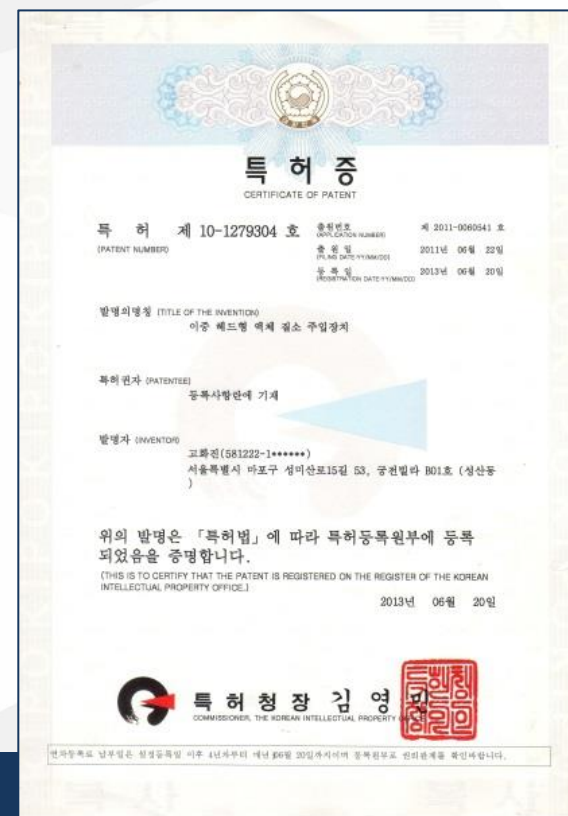
Korea Aerospace Industries  
Vacuum Pipe  
Production and Installation



## Certification



Aluminum Extrusion Mold Liquid Nitrogen Cooling System  
Patent No. 10-1878283



Double Head Liquid Nitrogen Doser Device  
Patent No. 10-1279304



## 01. LN2 Doser Overview

The LN2 doser, developed with our very own technology for the first time in Korea and installed in a number of automated lines, is our flagship product and has been operating in domestic canned beverage production lines for over 10 years.

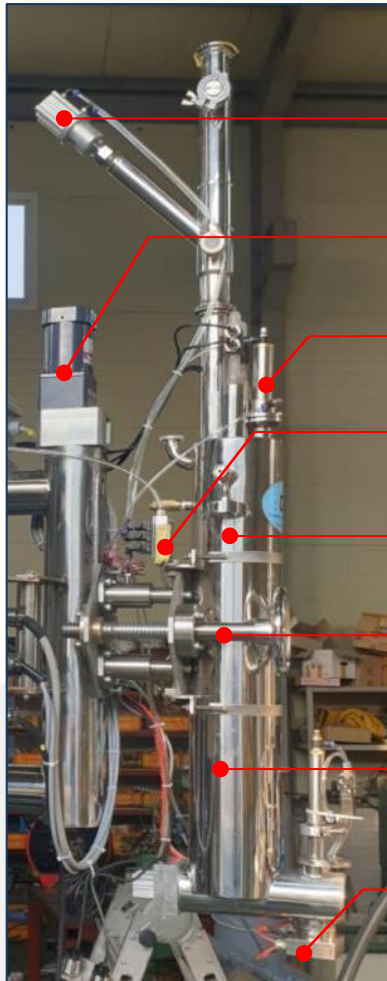
The self-developed equipment stacked with CVS' technology has been recognized by many companies. It is also patented equipment for CVS' proprietary technology.

The LN2 doser produced by CVS has been supplied to domestic companies such as Coca-Cola Korea, Dongwon F&B, OKF, Wooil Beverage, and Naturecell, being recognized for its excellent performance.





## 02. LN2 Doser Structure and Type



1st Tank Valve Ass'y

Nozzle Up-Down Ass'y

2nd Tank Valve Ass'y

Pneumatic Solenoid Valve Ass'y

Phase Separation Zone(1st Tank)

Forward Backward Nozzle Adjustment

LN2 Storage Zone (2nd Tank)

LN2 Dosing Ass'y

▲ Unit Name



▲ LN2 Doser for Homemade Cans



▲ LN2 Doser for Corporate Research

### 03. LN2 Doser Composition



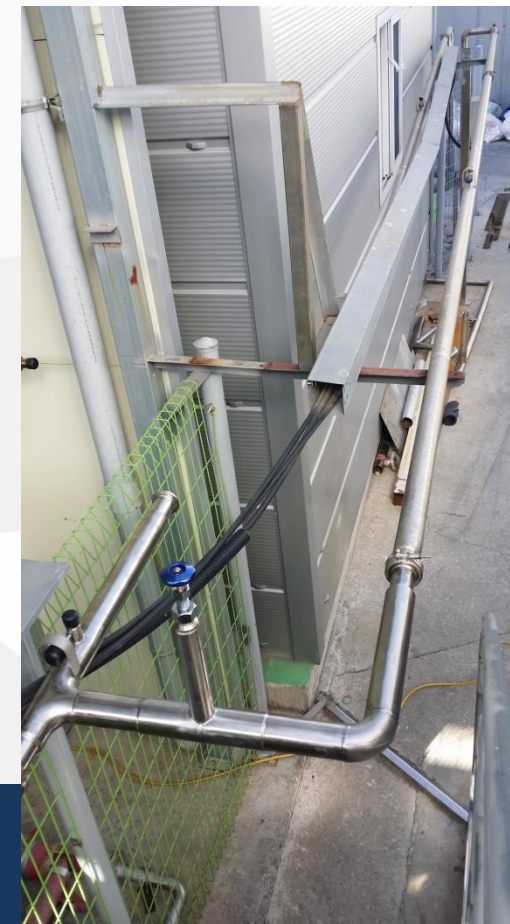
▲ CVS Phase Separator



▲ Doser's Up/Down and  
Front/Back Control



▲ Vacuum Pump



▲ Vacuum Pipe



### 03. LN2 Doser Composition

#### LN2 Doser Composition - Phase Separator

The phase separator, structured as a dual-tank, functioning as a gas-liquid separation and storage tank, stably supplies liquid nitrogen to the doser.

After shutdown, all valves are automatically closed to prevent ingress of outside air.

The phase separator prevents moisture condensation by supplying a low-pressured gaseous nitrogen to the inner tank.

Developed with CVS' proprietary technology. Thanks to its 10 years of provisions to large domestic beverage production plants, its durability is evident.





### 03. LN2 Doser Composition Vacuum Pump

#### Dynamic Vacuum Pumping Unit

Dynamic Pumping Technique: A practice where a vacuum pump installed within the vacuum pipe and the container operates the vacuum pump, when the vacuum level of the equipment drops, in order to maintain optimum vacuum levels.

2 ea of vacuum pumps (1 Run. 1 Stand-by)  
Vacuum measurement and 1 ea of controller  
Vacuum Valve  
Vacuum Sensor  
Control Box

TOUCH SCREEN

CONTROLLER

SWITCH





### 03. LN2 Doser Composition Vacuum Pipe

#### Vacuum Pipe

The vacuum pipe is an insulated structure with a liquid nitrogen transportation vessel pipe inside made of multiple layers of thin aluminum plates and an ultra-low temperature insulation material made of fiberglass.

A thin aluminum plate blocks radiant heat while the fiberglass blocks conduction heat. The vacuum pipe is assembled with vacuum layers formed between the insulated inner tube and outer tube, with a bayonet installed at both ends for easy assembly and disassembly.

All joints are argon-welded and inspected with a Helium Leak Detector. CVS' vacuum pipe for LN2 supply, which removes impure gases and moisture with a vacuum pump while maintaining a high vacuum level of 10–3 torr, minimizes liquid nitrogen loss caused by vaporization.





# CVS PRODUCT

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## CVS Product

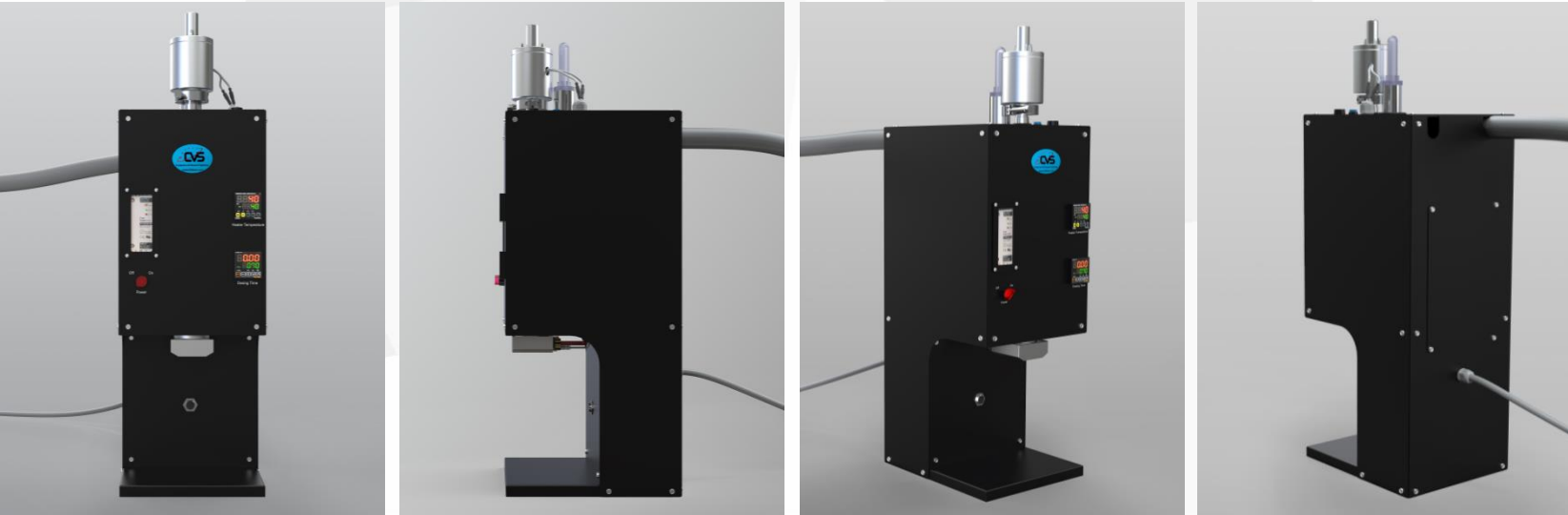
### Mini LN2 Doser (M-2100)

The existing LN2 dosers are mostly installed in beverage mass production lines. They are large in size and designed exclusively for mass production processes.

The mini LN2 doser is a piece of equipment that has minimized the volume and functions of the existing LN2 dosers.

It is a newly developed doser that has been reduced in size, aiding small businesses, such as retail stores, home brewed coffee shops, and homemade juice sellers, with easy liquid nitrogen injections, rather than mass production automated factories.

CVS' LN2 doser, with its reduction in size and price when compared to the LN2 dosers designed for mass production, allow for easy access of liquid nitrogen dosers to individual cafe owners and can/PET beverage producers.





## CVS Product

### Application LN2 Doser

The medium-sized LN2 doser supplied to HITEJINRO and its corporate research institutes is used for the purpose of conducting corporate research as well as for experiments and tests.

Additionally, CVS are leaping forward drastically to develop and manufacture new cryogenic application equipment in collaboration with companies.





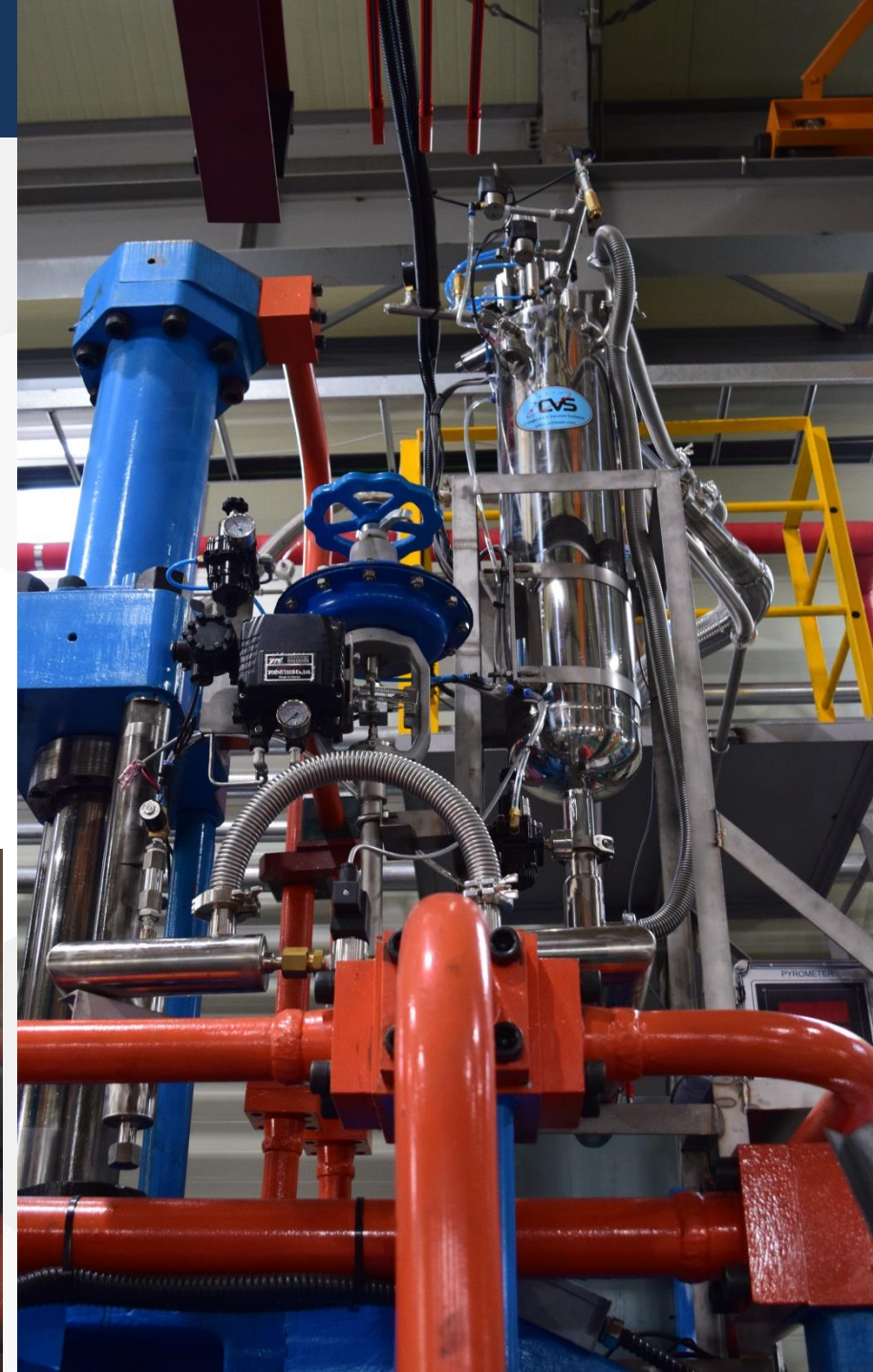
## CVS Product

### Aluminum Extrusion Mold Liquid Nitrogen Cooling System

The world's first aluminum extrusion mold LN2 cooler is a piece of equipment that provides innovation to the aluminum extrusion process.

The LN2 cooler locally cools the frictional heat given off from the extrusion mold's bearing surface in order to increase the extrusion speed to the set temperature by more than two-fold; while reducing the defect ratio of extruded products to drastically improve the surface quality.

CVS' self-developed extrusion mold LN2 cooling system is the first of its kind in the world, and is developed with new patented technology that can innovate the aluminum extrusion process.





# Thank You !

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[www.cafe.daum.net/Ln2Doser](http://www.cafe.daum.net/Ln2Doser)