

Vacuum Pipe

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

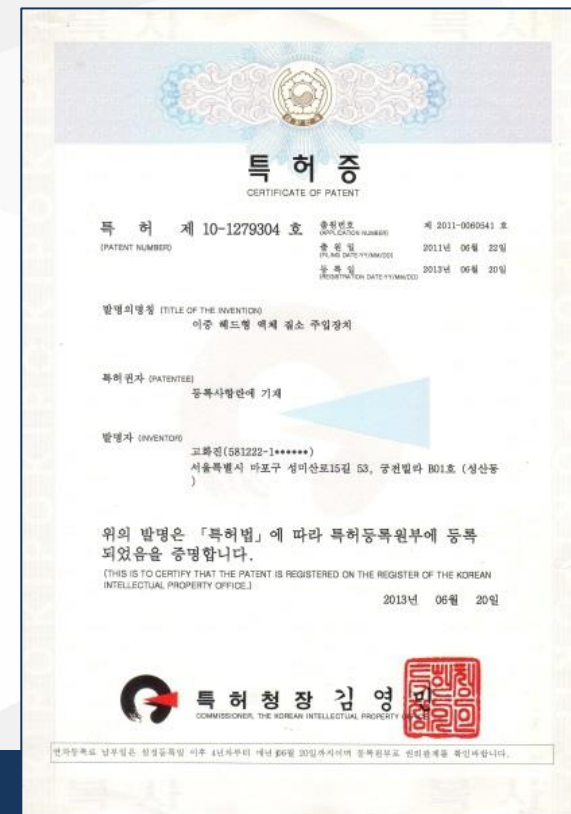
Korea Aerospace Industries
Vacuum Pipe
Production and Installation



Certification



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



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

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.



Vacuum Pipe Structure

A thin aluminum plate blocks radiant heat while the fiberglass blocks conduction heat.

The insulated inner pipes and outer pipes are assembled to form a vacuum layer in between.

A bayonet is installed at both ends for easy assembly and disassembly afterwards, all joints are argon-welded. Additionally, the welded parts are inspected with a helium leak detector; impurity gases and moisture are removed with a vacuum pump to maintain a high vacuum of 10⁻³ torr.

The high vacuum state minimizes liquid nitrogen loss from vaporization, within the vacuum pipe, during liquid nitrogen supplying.

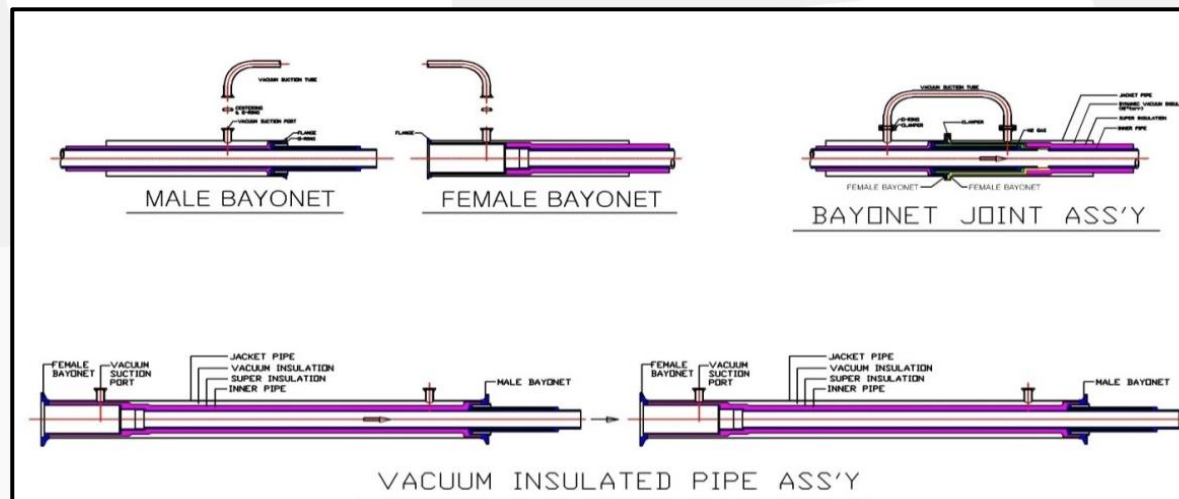
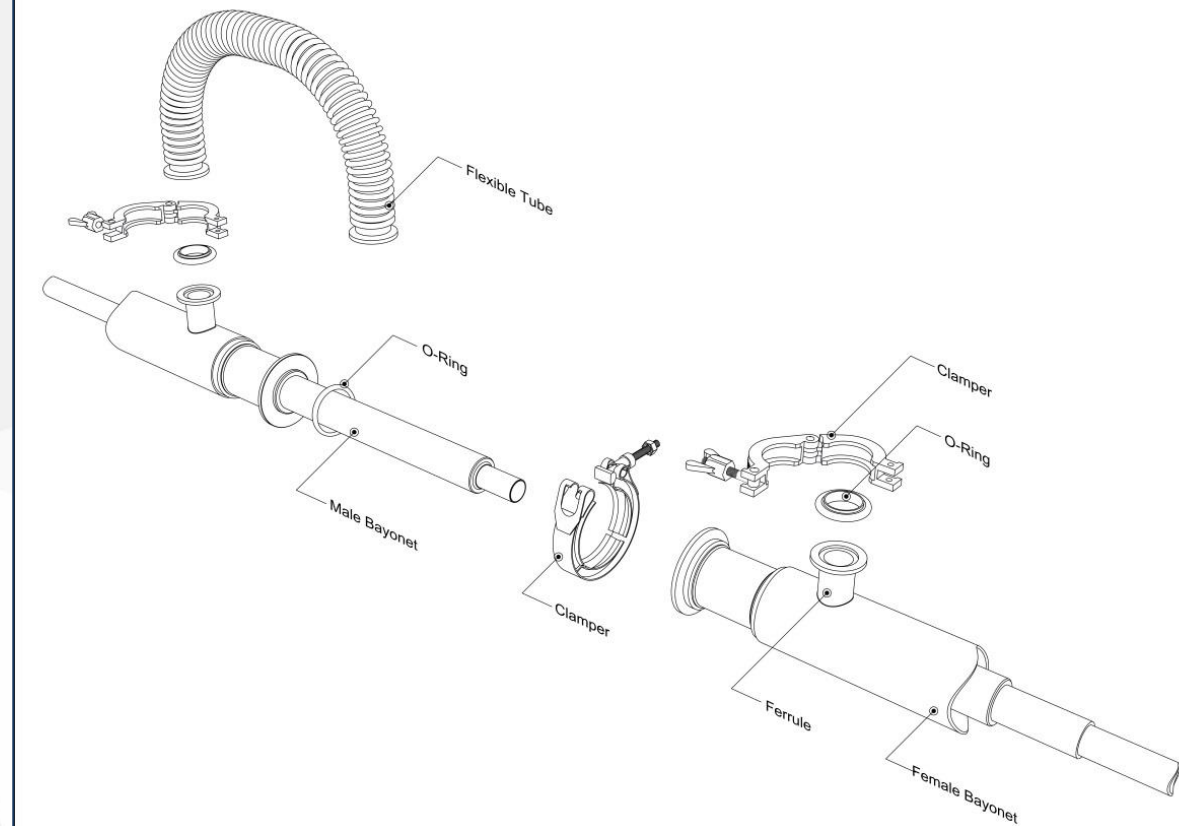
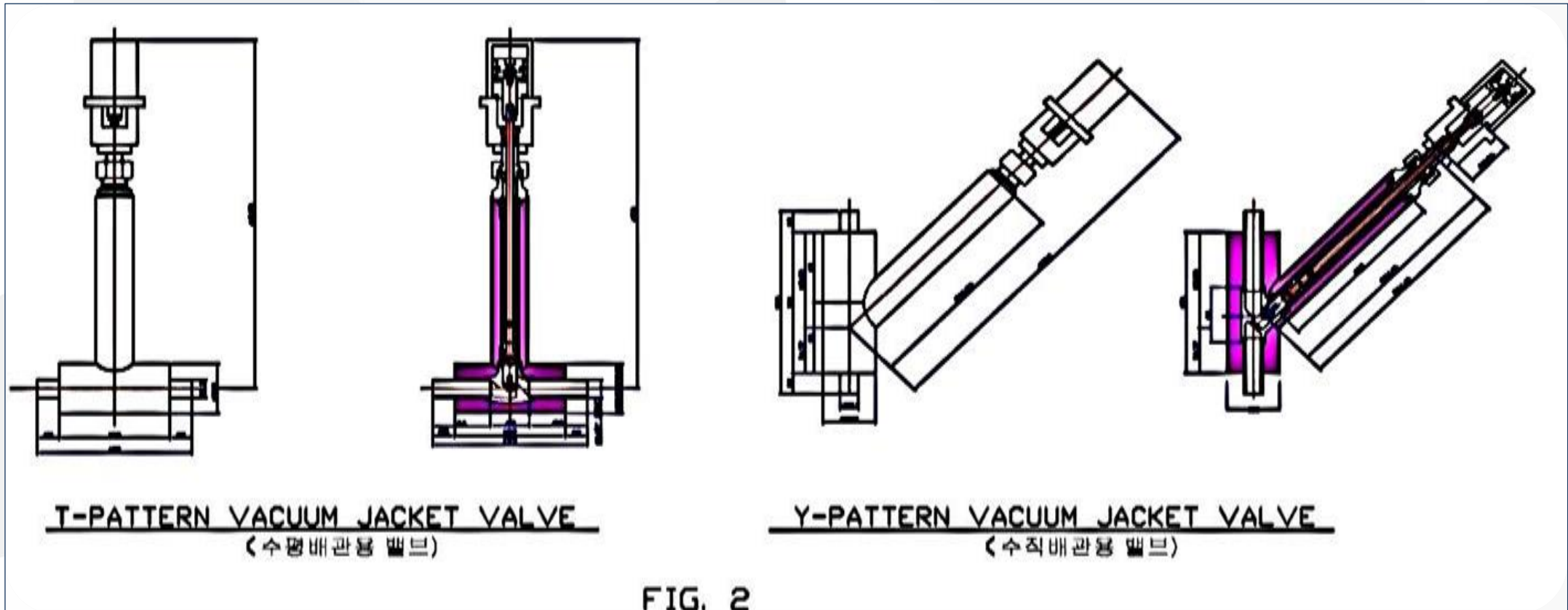


FIG. 1

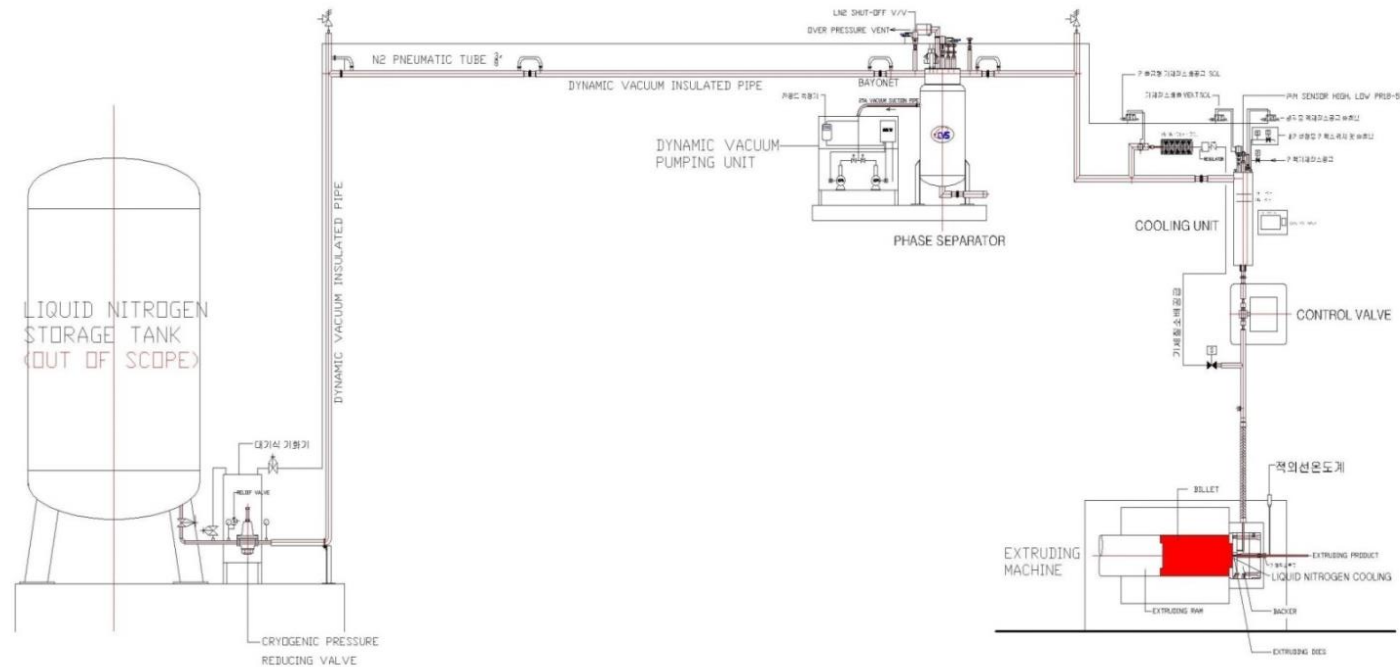
Liquid Nitrogen Leakage Block in Vacuum Pipe

Liquid nitrogen leakage from within the vacuum pipe can be blocked by the following methods

A T-pattern vacuum jacket valve is installed for a horizontal vacuum pipe while a Y-pattern vacuum jacket valve is installed for a vertical vacuum pipe.



Example of Liquid Nitrogen Supply System



<div>CVS Corporation</div> <div>KOREA, TEL: 070-4222-1960 FAX: 031) 988-0196</div>				
Drawn by	Customer			
Checked by	Title			
Reviewed by	알루미늄 압출금형온도 액체질소 냉각 SYSTEM LAYOUT			
Projection	Scale	Date	Drawing No.	Rev.
	NONE	170621	CVS-170621-002	

Vacuum Pipe Pump Panel

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



Vacuum Pipe Pump Panel

Control Panel

Automatically operated under the degree of vacuum set by the PLC-controlled automatic operation system.



CVS PRODUCT

CVS Product

LN2 Doser

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.



CVS Product

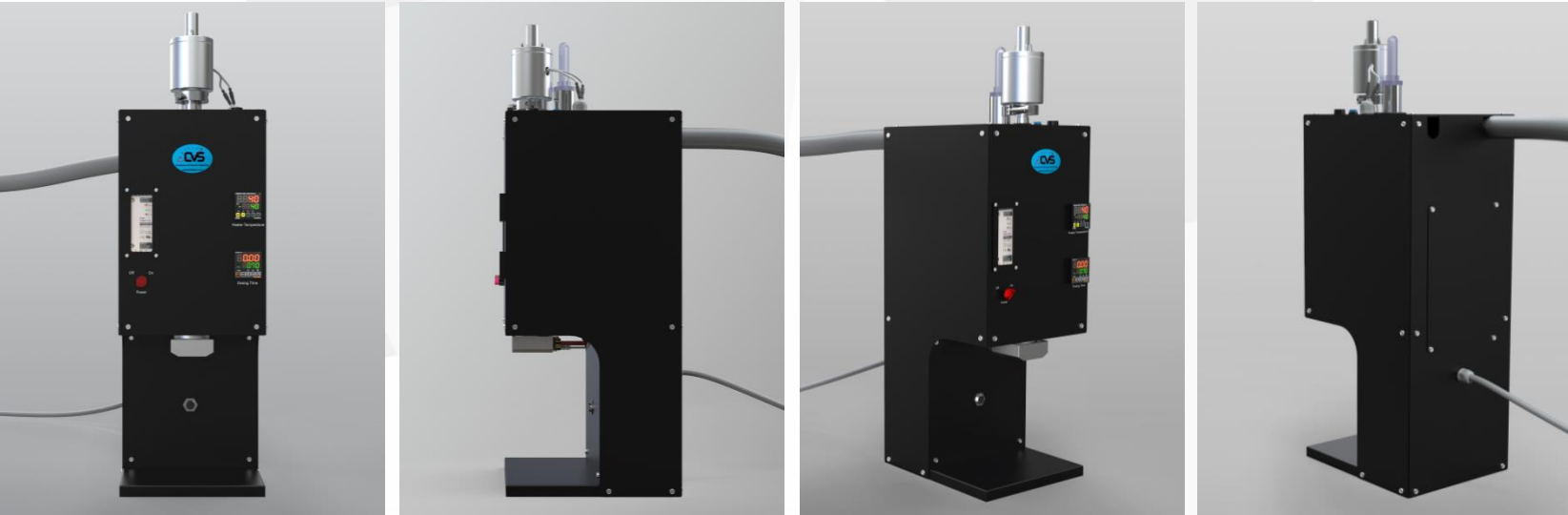
Mini LN2 Doser (M-2100)

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.

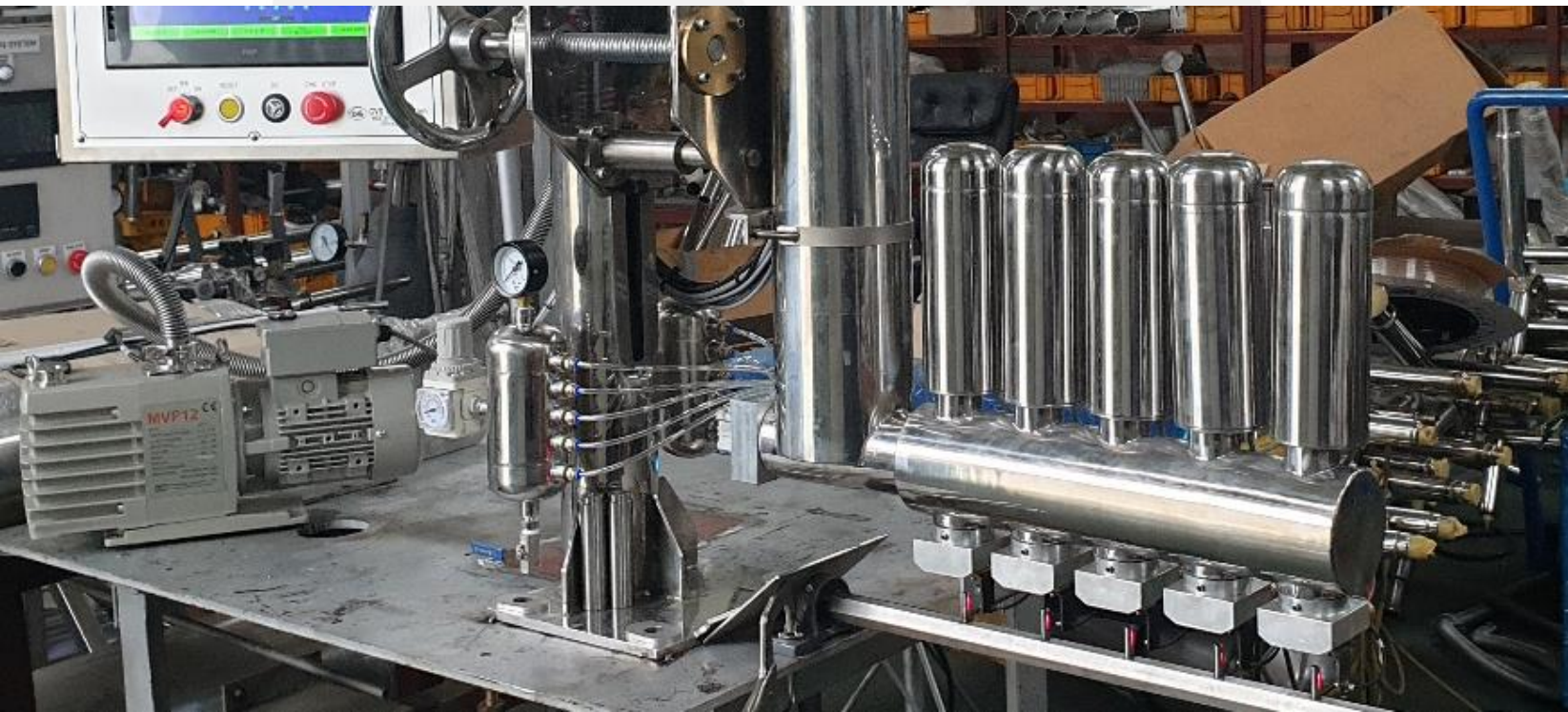


CVS Product

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.



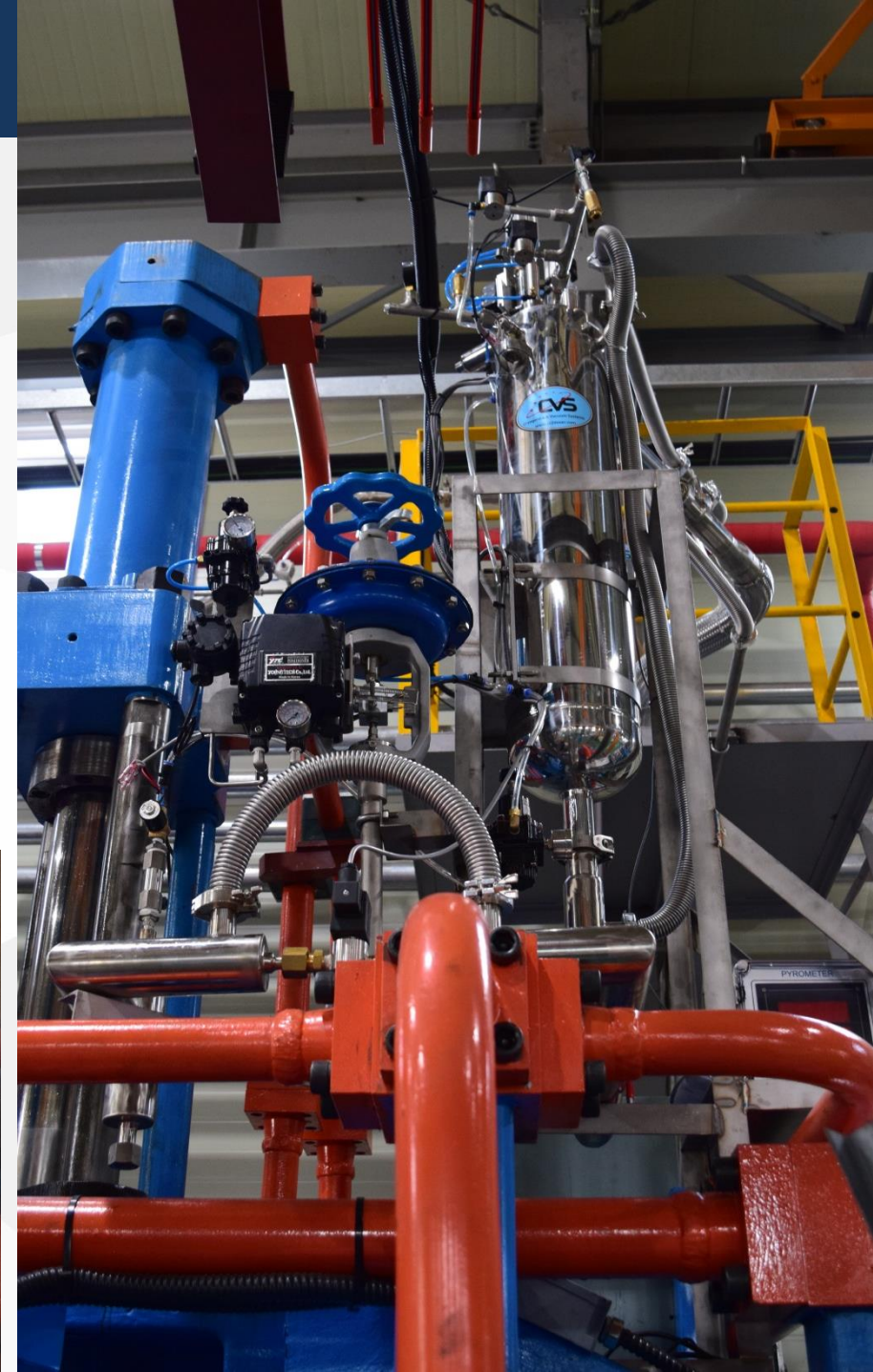
CVS Product

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.



CVS Product

Phase Separator

Liquid nitrogen is supplied through a vacuum pipe from an externally installed LN2 tank. This point, the liquid nitrogen is primarily stored in the phase separator in the double storage tank. The phase separator in the double storage tank is installed at the end of the vacuum pipe to store liquid nitrogen while also adjusting the internal pressure deviation.

The phase separator, installed as a part of the double storage tank, is a piece of equipment developed with CVS' own technology. The phase separator facilitates the operation of the LN2 application systems such as the LN2 dosers and extrusion mold LN2 cooling systems, to ensure that the LN2 application systems are operated under optimal conditions. The phase separator in the double storage tank, developed by CVS with our own technology, is the first of its kind.



Thank You !



ADDRESS 14-6, Gimpo-daero 1750beon-gil, Yangchon-eup,
Gimpo-si, Gyeonggi-do, Republic of Korea, CVS Co., Ltd.

PHONE +82 10-3207-5888

TELL 070-4222-1960

WEB SITE www.Ln2doser.com

PR WEB CENTER www.blog.naver.com/cvsdoser
www.cafe.daum.net/Ln2Doser