

Eco-Friendly

# Liquid Nitrogen Generator EMP Series

With EMP Series,  
LN2 is available anytime.



# EMP Series Liquid Nitrogen Generators improve your working environment!!

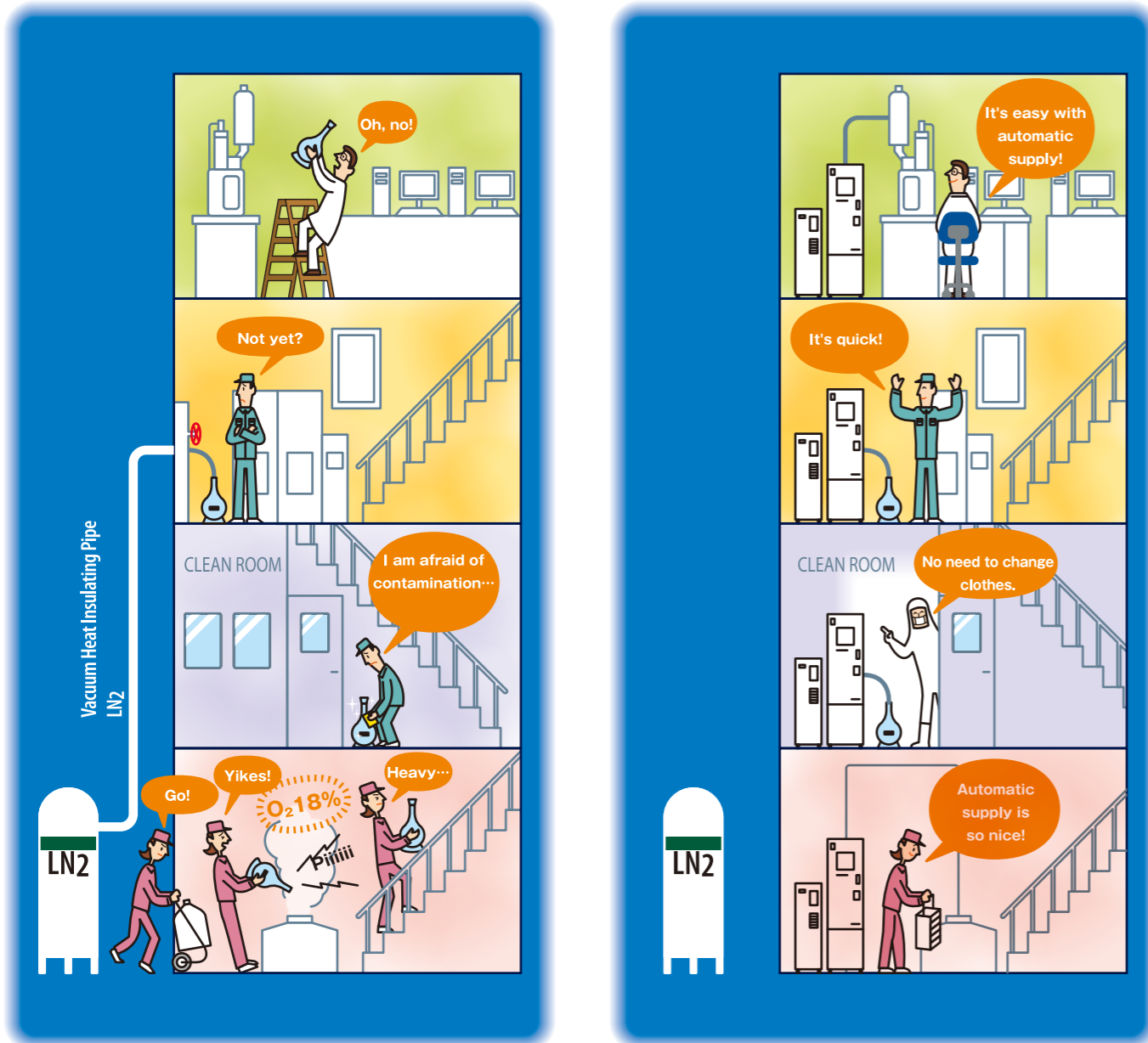
Eco-Friendly

## Features of EMP Series

- Start operation simply by pressing a button.
- Supply LN2 anytime and as much as needed.
- Can keep operation during the nights or on holidays.
- Supply LN2 automatically to wide variety of equipments.

Before introducing EMP...

After introducing EMP...



### The Advantages of EMP Series Liquid Nitrogen Generators

- ADVANTAGE 1** No need to purchase LN2
- ADVANTAGE 2** No need to monitor the amount of remaining LN2
- ADVANTAGE 3** Improved safety thanks to less work
- ADVANTAGE 4** No need to supply LN2 to analytical instruments, etc.

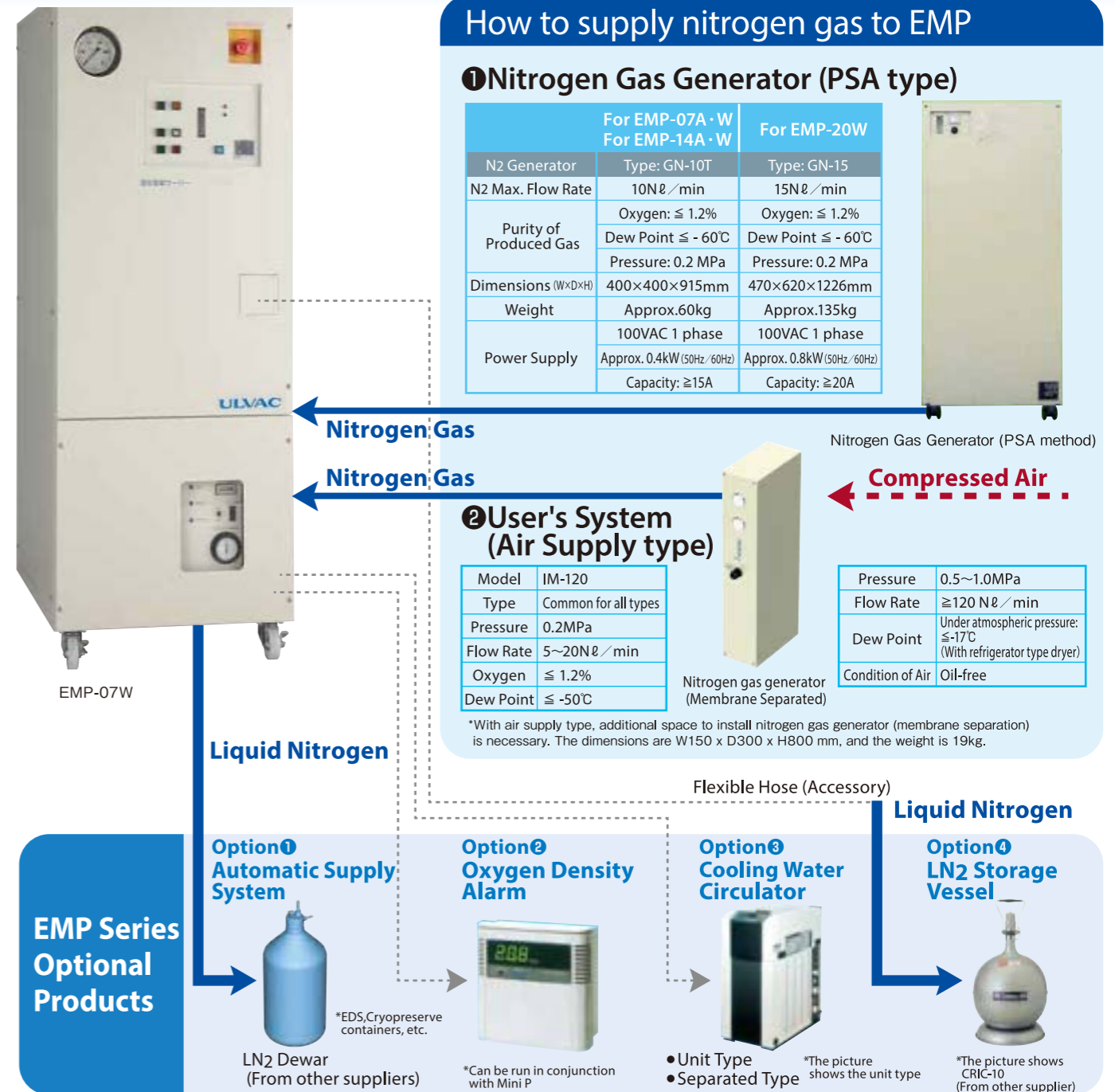
Optimal for

• Semiconductor Factories • Analysis Centers • Universities • Research Firms, etc.

### How to supply nitrogen gas to EMP

#### ① Nitrogen Gas Generator (PSA type)

	For EMP-07A · W For EMP-14A · W	For EMP-20W
N2 Generator	Type: GN-10T	Type: GN-15
N2 Max. Flow Rate	10Nℓ / min	15Nℓ / min
Purity of Produced Gas	Oxygen: ≤ 1.2%	Oxygen: ≤ 1.2%
	Dew Point ≤ -60°C	Dew Point ≤ -60°C
	Pressure: 0.2 MPa	Pressure: 0.2 MPa
Dimensions (W×D×H)	400×400×915mm	470×620×1226mm
Weight	Approx. 60kg	Approx. 135kg
	100VAC 1 phase	100VAC 1 phase
Power Supply	Approx. 0.4kW (50Hz / 60Hz)	Approx. 0.8kW (50Hz / 60Hz)
	Capacity: ≥15A	Capacity: ≥20A



#### ② User's System (Air Supply type)

Model	IM-120
Type	Common for all types
Pressure	0.2MPa
Flow Rate	5~20Nℓ / min
Oxygen	≤ 1.2%
Dew Point	≤ -50°C

\*With air supply type, additional space to install nitrogen gas generator (membrane separation) is necessary. The dimensions are W150 x D300 x H800 mm, and the weight is 19kg.

Pressure	0.5~1.0MPa
Flow Rate	≥120 Nℓ / min
Dew Point	Under atmospheric pressure: ≤ -17°C (With refrigerator type dryer)
Condition of Air	Oil-free

### New "Eco-Friendly Mode" Added!

With previous models, nitrogen gas generators keep running all the time.

With this mode, gas generators are turned off when the amount of remaining LN2 is sufficient.

### Reduced Energy Consumption

EMP-07A · 7W	EMP-14A · 14W	EMP-20W
2,000 kwh/year reduced (Cost reduction of 30,000 yen / year)	2,500 kwh/year reduced (Cost reduction of 38,000yen / year)	6,000 kwh/year reduced (Cost reduction of 90,000yen / year)

\*Calculated with 1 kWh=15 yen. \*The above calculations assume annual operating ratio of 15% (Compared to our previous models).

### Extended Maintenance Intervals

The maintenance intervals will be extended depending on the operation of nitrogen gas generator.

Cost Reduction!

### Model EMP-07A / EMP-07W

LN<sub>2</sub> Production Capacity 8ℓ / day (60Hz)  
6ℓ / day (50Hz)

#### Typical Usage

- Vacuum Evacuation Device LN<sub>2</sub> Cold Trap EMP-07A
- Material Analyzing Device EMP-07A / EMP-07W
- Electron Microscope EDS (EDX) Detector EMP-07A / EMP-07W
- Biological Cryopreservation Container EMP-07W

	EMP-07A	EMP-07W
LN <sub>2</sub> Production Capacity	8ℓ / day (60Hz) , 6ℓ / day (50Hz)	
LN <sub>2</sub> Storage Capacity	40ℓ	
Dimensions	W600×D750×H1628mm	
Weight	Approx. 220kg	Approx. 230kg
Power Supply	100VAC 1 phase Approx. 1.2 / 1.4 kw (50 / 60 Hz) Breaking capacity 20A	
Cooling Water	Not needed (Air cooled)	Entrance: 5 - 35 °C Flow rate: 2 - 5ℓ/min Pressure: < 0.8 MPa Water quality: Tap water equivalent

Nitrogen gas generator: GN-10T



EMP-07A

EMP-07W

### Model EMP-20W

LN<sub>2</sub> Production Capacity 20ℓ / day (60Hz)  
19ℓ / day (50Hz)

#### Typical Usage

- Biological Cryopreservation Container
- Electron Microscope EDS (EDX) Detector

	EMP-20W
LN <sub>2</sub> Production Capacity	20ℓ / day (60Hz) , 19ℓ / day (50Hz)
LN <sub>2</sub> Storage Capacity	80ℓ
Dimensions	W930×D740×H1661mm
Weight	Approx. 340kg
Power Supply	200VAC 3 phase Approx. 3.3 / 4.1 kw (50 / 60 Hz) Breaking capacity 30A
Cooling Water	Entrance: 10 - 30°C Flow rate: 3 - 6ℓ/min Pressure: < 0.8 MPa Water quality: Tap water equivalent

Nitrogen gas generator: GN-10T



EMP-20W

### Model EMP-14A / EMP-14W

LN<sub>2</sub> Production Capacity 14ℓ / day (60Hz)  
14ℓ / day (50Hz)

#### Typical Usage

- Biological Cryopreservation Container EMP-14A / EMP-14W
- Cooling Down Samples EMP-14A / EMP-14W

	EMP-14A	EMP-14W
LN <sub>2</sub> Production Capacity	14ℓ / day (60Hz) , 14ℓ / day (50Hz)	
LN <sub>2</sub> Storage Capacity	40ℓ	
Dimensions	W600×D750×H1688mm	
Weight	Approx. 235kg	Approx. 230kg
Power Supply	200VAC 3 phase Approx. 1.7 / 2.0 kw (50 / 60 Hz) Breaking capacity 20A	200VAC 3 phase Approx. 1.6 / 1.9 kw (50 / 60 Hz) Breaking capacity 20A
Cooling Water	Not needed (Air cooled)	Entrance: 5 - 35 °C Flow rate: 2 - 6ℓ/min Pressure: < 0.8 MPa Water quality: Tap water equivalent

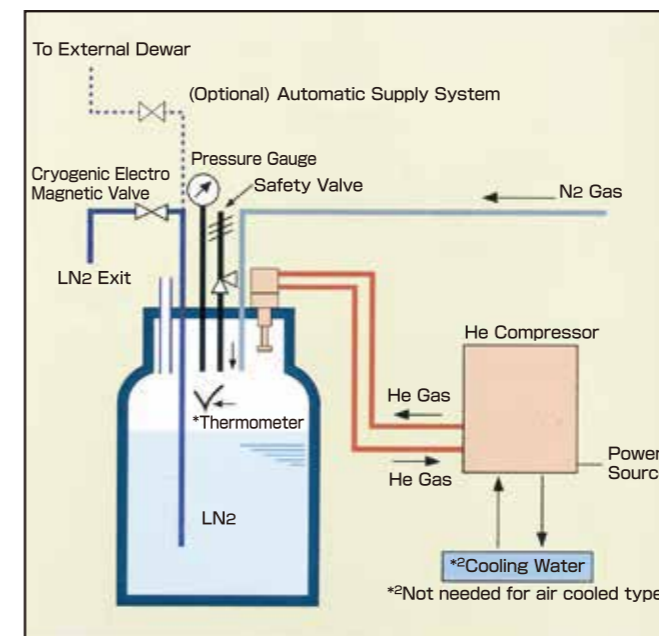
Nitrogen gas generator: GN-10T



EMP-14A

EMP-14W

#### Flow Diagram inside EMP



\* A thermometer is needed in some cases.

#### OPERATING PRECAUTIONS

- When installing EMP in a room without appropriate size windows, a ventilating fan of above 1,000 m<sup>3</sup>/h (2,000 m<sup>3</sup>/h or above for EMP-20W) must be furnished to prevent oxygen shortage. It is recommended to install an oxygen alarm as well.
- LN<sub>2</sub> is ultra low temperature liquefied gas. Always handle with care.
- Touching LN<sub>2</sub> or cryogenic part like LN<sub>2</sub> exit may result in low temperature burns. Make sure to wear protective gloves such as leather gloves.
- EMP must not be operated in organic solvent atmosphere.
- Maintenance is necessary according to the time used.



## Optional Products

### ① Automatic supply system

Configuration

- Capacitance Type Liquid Level Detector
- Adaptor for Supply Container
- Level Indicator Box
- Liquid Level Detector Cable (Max. 10 m)
- Annealing Tube with Simple Insulation (Max. 10 m)

\* Capacitance type liquid level detectors and the adaptors will be designed to fit users' containers.

\* Automatic supply system cannot be attached to some types of containers or places.

\* Capacitance type liquid level detectors might cause noise depending on containers. Please contact us about the container's specifications.



### ② Oxygen Density Alarm

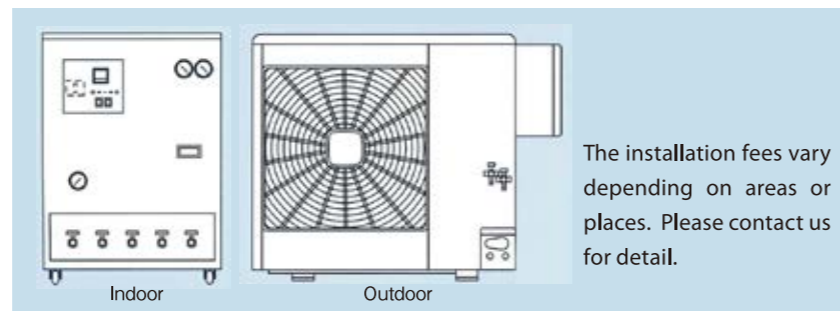
Model	MG-1000
Measurable Range	0~25% O <sub>2</sub>
Alarm Output	Alarm Density Fixed to 18% Contact (2 circuits) and buzzer
Operating Conditions	Ambient Temperature 0 - 40°C Relative Humidity 30 - 80 % (no condensation)
Dimensions	W120×D55×H120mm
Weight	Approx. 500 g
Power Supply	AC100V 13VA



### ③ Cooling Water Circulator Unit Type

[For All Models]

Model	RKE1500B1-V
Measurable Range	0~25% O <sub>2</sub>
Dimensions	W400×D850×H966mm
Weight	96kg
Power Supply	200 VAC 3 phase 2.3/2.4kW (50Hz/60Hz) Capacity: above 15A



The installation fees vary depending on areas or places. Please contact us for detail.

### Separated Type

[1] EMP-07W, EMP-14W

Model	KCW-2S
Dimensions	Indoor: W600×D550×H880mm Outdoor: W792×D300×H600mm
Weight	Indoor: 87kg Outdoor: 52kg
Power Supply	200 VAC 3 phase approx. 2.38/2.69kW (50Hz/60Hz) Capacity: above 30A

[2] EMP-20W

Model	KCW-3S
Dimensions	Indoor: W600×D550×H880mm Outdoor: W1000×D315×H800mm
Weight	Indoor: 87kg Outdoor: 70kg
Power Supply	200 VAC 3 phase approx. 3.33/3.82kW (50Hz/60Hz) Capacity: above 30A



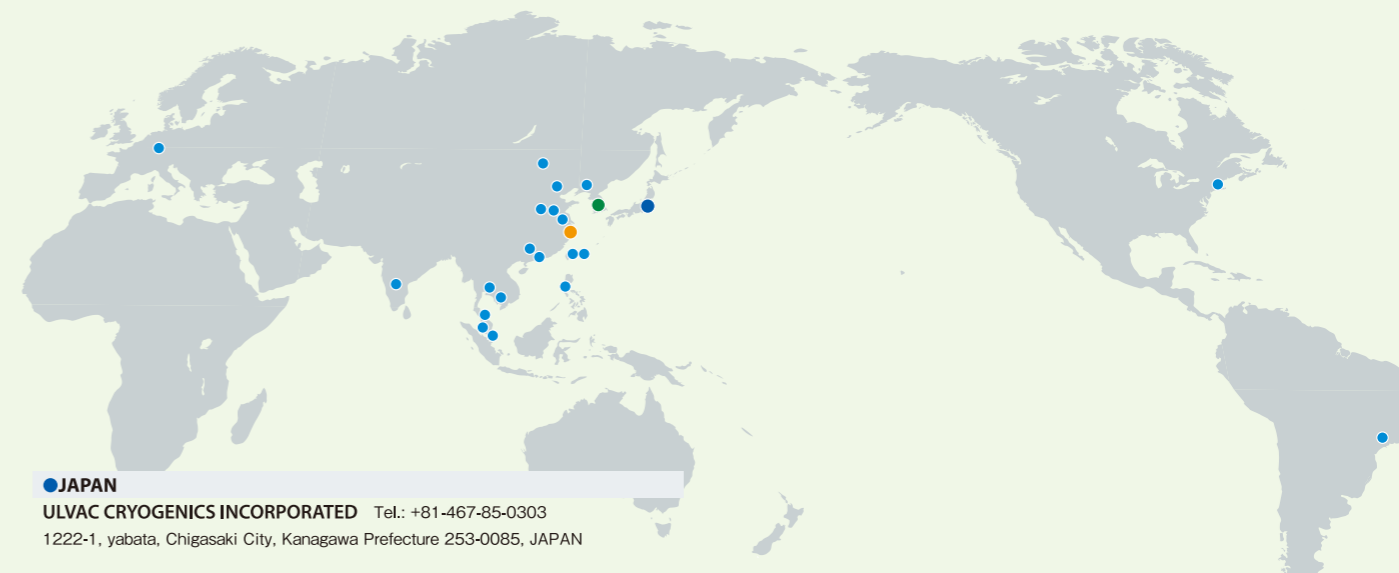
### ④ Liquid Nitrogen Storage Vessel CRIC Series

Model	CRIC-5	CRIC-10	CRIC-25
Capacity (ℓ)	5	10	25
Dry Weight (kg)	3.5	6	13.5
Weight When Filled (kg)	7.5	14.1	34.2
External Diameter (mm)	265	335	435
Internal Diameter of Filler Port (mm)	24	24	24
Height (mm)	460	550	650
Evaporation Losses	0.32ℓ / day (6.4%)	0.36ℓ / day (3.6%)	0.5ℓ / day (2.0%)

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We provide support services on a global basis.

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For inquiries

●The content of this catalog is subject to change without notice for improvement of the products.

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