

ULVAC CRYOGENICS INC.

Head office and factory
1222-1 Yabata, Chigasaki, Kanagawa, 253-0085, JAPAN
TEL : +81-(0)467-85-0303
FAX : +81-(0)467-85-9356
Technical service division TEL : +81-(0)467-85-9366

Kyoto Factory
140-1, Megawa, Makishima-cho, Uji, Kyoto, 611-0041, JAPAN
TEL : +81-(0)774-28-5595
FAX : +81-(0)774-20-2201

Osaka branch office
3-3-31 Uemura Nissei bldg., Miyahara, Yodogawa-ku, Osaka, 532-0003, JAPAN
TEL : +81-(0)6-6397-0112
FAX : +81-(0)6-6397-0126

Overseas group companies

Korea
ULVAC CRYOGENICS KOREA INC.
107, Hyeongokasndan-Ro, Cheongbuk-Myeon, Pyeongtaek-Si, Gyeonggi-Do, Korea, 451-831
TEL : +82-(0)31-683-2926
FAX : +82-(0)31-683-2956

China
ULVAC CRYOGENICS (NINGBO) INC.
1-2 Floor, Shuguang Building, No.6 Jingyuan Road, Ningbo National Hi-Tech Zone, Ningbo, 315040, China
TEL : +86-(0)574-8790-3322
FAX : +86-(0)574-8791-0707

www.ulvac-cryo.com/english/

For inquiries

●The content of this catalog is subject to change without notice for improvement of the products.
150E201808500TLC

Eco-Friendly

Liquid Nitrogen Generator
EMP Series

With EMP Series,
LN2 is available anytime.



EMP Series Liquid Nitrogen Generators improve your working environment!!

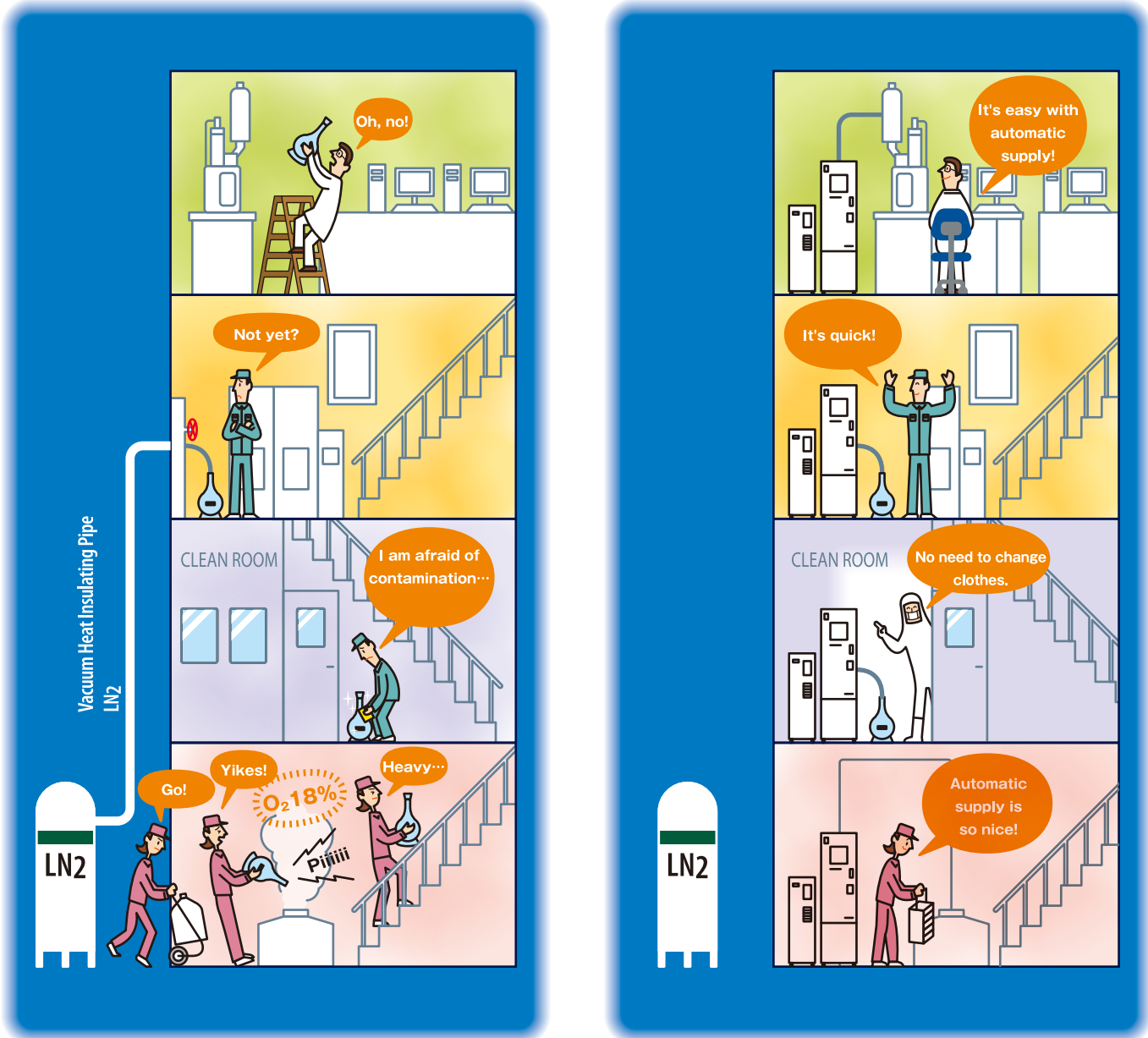
Features of EMP Series

- 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.

Eco-Friendly

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



Nitrogen Gas Generator (PSA method)

Compressed Air

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%

*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.

Dew Point	≤ -50℃
Pressure	0.5~1.0MPa
Flow Rate	≥120 Nℓ / min
Dew Point	Under atmospheric pressure: ≤ -17℃ (With refrigerator type dryer)
Condition of Air	Oil-free

Flexible Hose (Accessory)

Liquid Nitrogen

EMP Series
Optional
Products

Option① Automatic Supply System



LN2 Dewar
(From other suppliers)

*EDS, Cryopreserve
containers, etc.

Option② Oxygen Density Alarm



*Can be run in conjunction
with Mini P

Option③ Cooling Water Circulator



• Unit Type
• Separated Type

*The picture
shows the unit type

Option④ LN2 Storage Vessel



*The picture shows
CRIC-10
(From other supplier)

*Please refer to page 5 for the detailed specifications.

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

LN2 Production Capacity	8ℓ / day (60Hz) 6ℓ / day (50Hz)
Air Processing Capacity	5.2m³ / day

Typical Usage

Vacuum Evacuation Device LN2 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
LN2 Production Capacity	8ℓ / day (60Hz) , 6ℓ / day (50Hz)	
LN2 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 ℃ Flow rate: 2 - 5 ℓ/min Pressure: < 0.8 MPa Water quality: Tap water equivalent

Nitrogen gas generator: GN-10T



EMP-07A

EMP-07W

Model EMP-20W

LN2 Production Capacity	20ℓ / day (60Hz) 19ℓ / day (50Hz)
Air Processing Capacity	13.0m³ / day

Typical Usage

Biological Cryopreservation Container
Electron Microscope EDS (EDX) Detector

	EMP-20W
LN2 Production Capacity	20ℓ / day (60Hz) , 19ℓ / day (50Hz)
LN2 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℃ Flow rate: 3 - 6 ℓ/min Pressure: < 0.8 MPa Water quality: Tap water equivalent

Nitrogen gas generator: GN-10T



EMP-20W

Model EMP-14A / EMP-14W

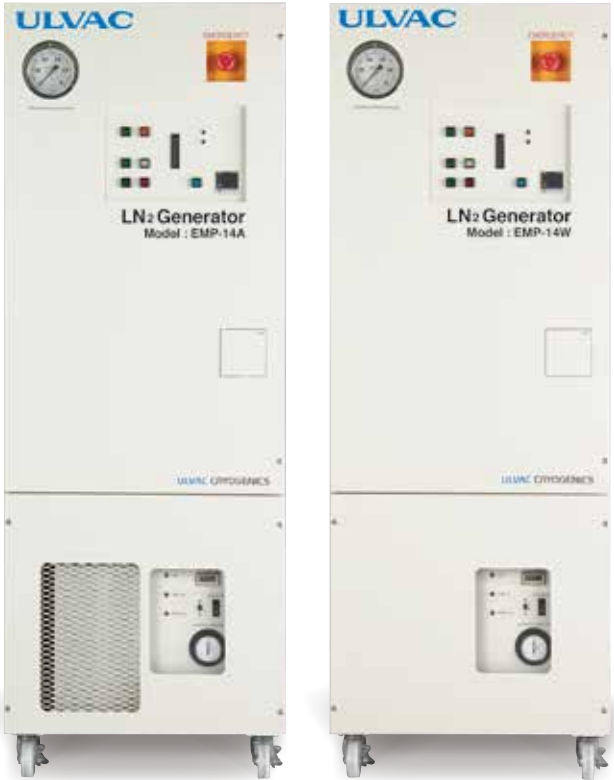
LN2 Production Capacity	14ℓ / day (60Hz) 14ℓ / day (50Hz)
Air Processing Capacity	9.1m³ / day

Typical Usage

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

	EMP-14A	EMP-14W
LN2 Production Capacity	14ℓ / day (60Hz) , 14ℓ / day (50Hz)	
LN2 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 ℃ Flow rate: 2 - 6 ℓ/min Pressure: < 0.8 MPa Water quality: Tap water equivalent

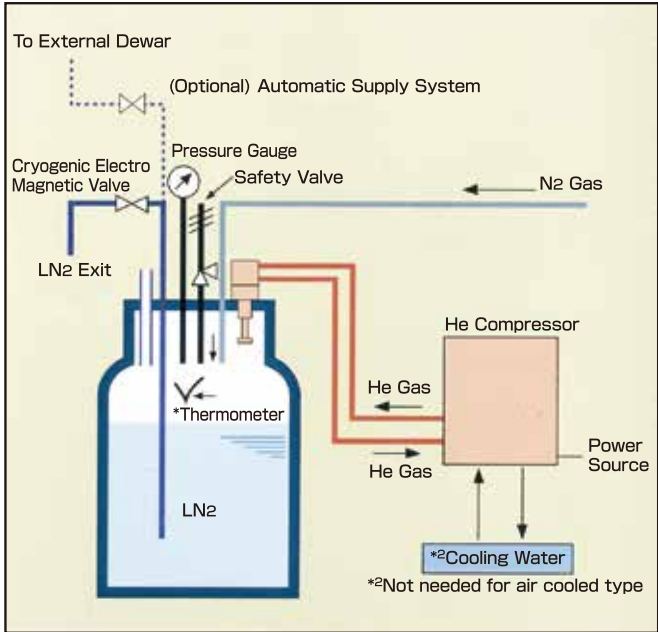
Nitrogen gas generator: GN-10T



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 m³/h (2,000 m³/h or above for EMP-20W) must be furnished to prevent oxygen shortage. It is recommended to install an oxygen alarm as well.
- LN2 is ultra low temperature liquefied gas. Always handle with care.
- Touching LN2 or cryogenic part like LN2 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

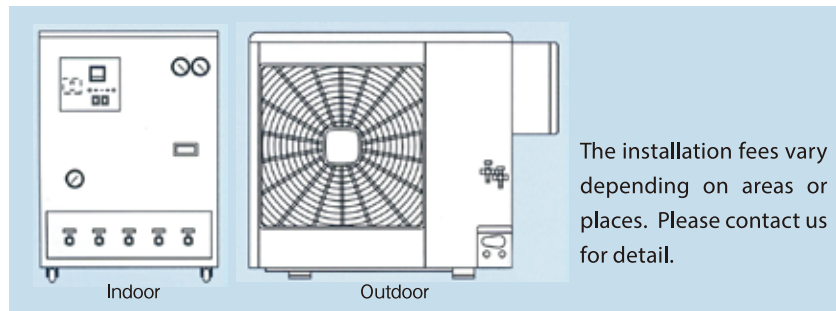
Model	MG-1000
Measurable Range	0~25% O ₂
Alarm Output	Alarm Density Fixed to 18% Contact (2 circuits) and buzzer
Operating Conditions	Ambient Temperature 0 - 40°C Relative Humidity 30 - 80 % (no condensation)
Dimensions	W120×D55×H120mm
Weight	Approx. 500 g
Power Supply	AC100V 13VA



③Cooling Water Circulator Unit Type

[For All Models]

Model	RKE1500B1-V
Measurable Range	0~25% O ₂
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.

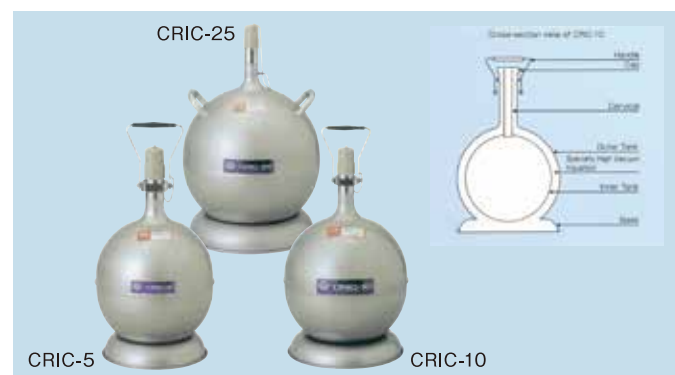
Separated Type

[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



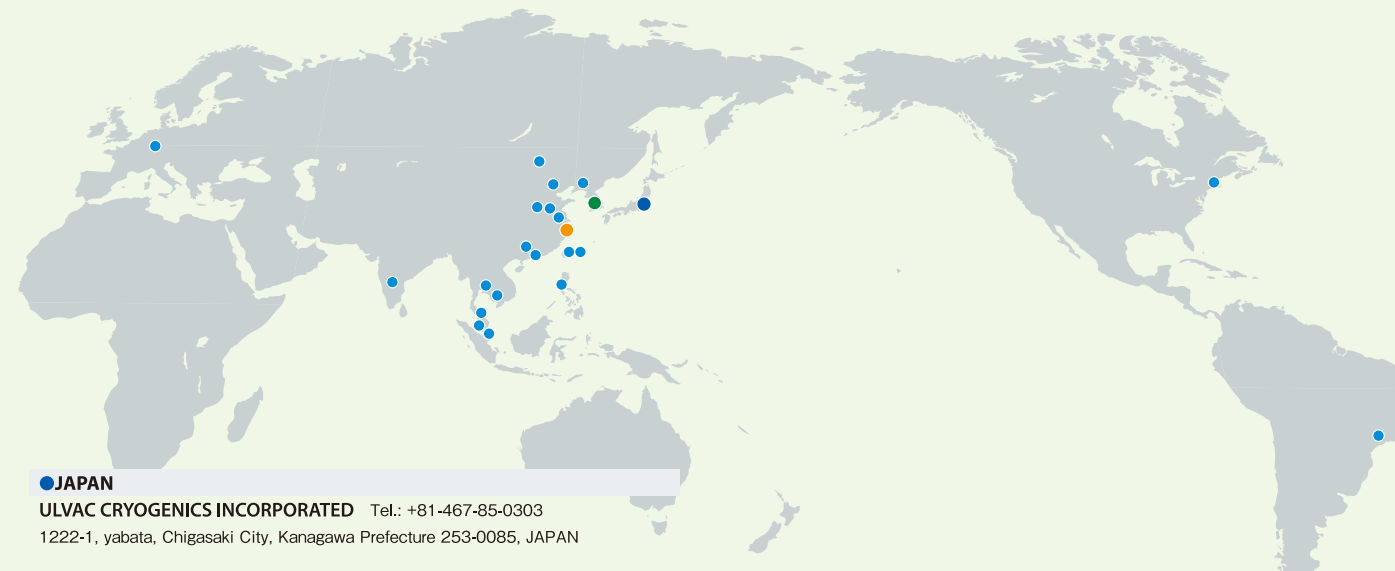
④Liquid Nitrogen Storage Vessel CRIC Series

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%)

OVERSEAS NETWORK

We provide support services on a global basis.

ULVAC Group has built the sales and production base as a quadrilateral structure including Japan, North America, Europe and Asia to provide best solutions to our customers.



●JAPAN

ULVAC CRYOGENICS INCORPORATED Tel.: +81-467-85-0303
1222-1, yabata, Chigasaki City, Kanagawa Prefecture 253-0085, JAPAN

●CHINA

ULVAC CRYOGENICS (NINGBO) INCORPORATED Tel.: +86-(0)574-8790-3322
1-2 Floor, Shuguang Building, No.6 Jingyuan Road, Ningbo National Hi-Tech Zone, Ningbo, 315040, China

ULVAC (SHANGHAI) Trading Co., Ltd. Tel.: +86-21-6127-6618

No.1000, Qixin Road, Minhang, Shanghai, 201199 China

Beijing Branch Tel.: +86-10-6781-6786

ShenZhen Branch Tel.: +86-755-8614-9393

Dalian Branch Tel.: +86-411-8740-7180

Suzhou Branch Tel.: +86-512-8917-9891

Chengdu Branch Tel.: +86-28-6551-8700

Hefei Branch Tel.: +86-551-3847-828

Hong Kong ULVAC Co., Ltd. Tel.: +852-2523-5940

Flat L, 9/F, Summit Building, 30 Man Yue Street, Hungghom, Kowloon, Hong Kong.

●KOREA

ULVAC CRYOGENICS KOREA INCORPORATED Tel.: +82-31-683-2926
107, Hyeongsandan-Ro, Cheongbuk-Myeon, Pyeongtaek-Si, Gyeonggi-Do, Korea 451-831

ULVAC KOREA, Ltd. Head Office Tel.: +82-31-683-2922

5, Hansan-Gil, Cheongbuk-Myeon, Pyeongtaek-Si, Gyeonggi-Do, Korea 451-833

Seoul Branch Tel.: +82-2-3473-2920

Gumi Customer Service Center Tel.: +82-54-471-3567

●TAIWAN

ULVAC TAIWAN INC. Head Office Tel.: +886-3-579-5688

4F.-2, No.882, Sec. 2, Guangfu Rd., East District, Hsinchu City 300, Taiwan

Tainan Science Industrial Park Branch Tel.: +886-6-505-8080

Taichung Office Tel.: +886-4-2565-3600

ULTRA CLEAN PRECISION TECHNOLOGIES CORP. Tel.: +886-6-505-8888

Tainan Science Industrial Park Fab: No. 27, Sec. 1, HuanDong Rd., Tainan Science

Park, Xinshi Dist., Tainan City 74146, Taiwan

Taoyuan Branch Tel.: +886-3-358-5481

Taichung Office Tel.: +886-4-2526-3400

●USA

ULVAC Technologies, Inc. Tel.: +1-978-686-7550
401 Griffin Brook Drive, Methuen, MA 01844, U.S.A.

●GERMANY

ULVAC GmbH Tel.: +49-89-960909-0
Parking 11, 85748 Garching (Munich), Germany

●BRAZIL

ULVAC Brasil Representative Office TEL.: +55-0-11-3257-8800
Rua da Consolação,1992, Conj32 São Paulo - SP, Brasil

●SINGAPORE/PHILIPPINES/VIETNAM/INDONESIA

ULVAC SINGAPORE PTE LTD Head Office Tel.: +65-6542-2700

11 Tampines Street 92, Tampines Biz-Hub, #02-08, Singapore 528872

Philippines Branch Tel.: +63-46-437-7700

ULVAC Vietnam Representative Office Tel.: +84-8-6255-6762

Indonesia Representative Office Tel.: +62-21-8990-5070

●THAILAND

ULVAC (THAILAND) LTD. Tel.: +66-2-7388883

110/6 Moo 13 Soi 25/2 Kingkaew Road, Tambol Rachathewa Amphur Bangplee, Samutprakarn 10540 Thailand

●MALAYSIA

ULVAC MALAYSIA SDN. BHD. Tel.: +60-3-5121-4700

No.8 Jalan Gitar 33/3, Elite Industrial Estate Off Jalan, Bukit, Kemuning 40350, Shah Alam, Selangor, Malaysia

KULIM BRANCH Tel.: +60-4-4848-006

●INDIA

ULVAC, Inc. India Branch Tel. +91-40-27007006

301, Tara Tycoon 12-13-97, Tamaka Secunderabad - 500 017, India