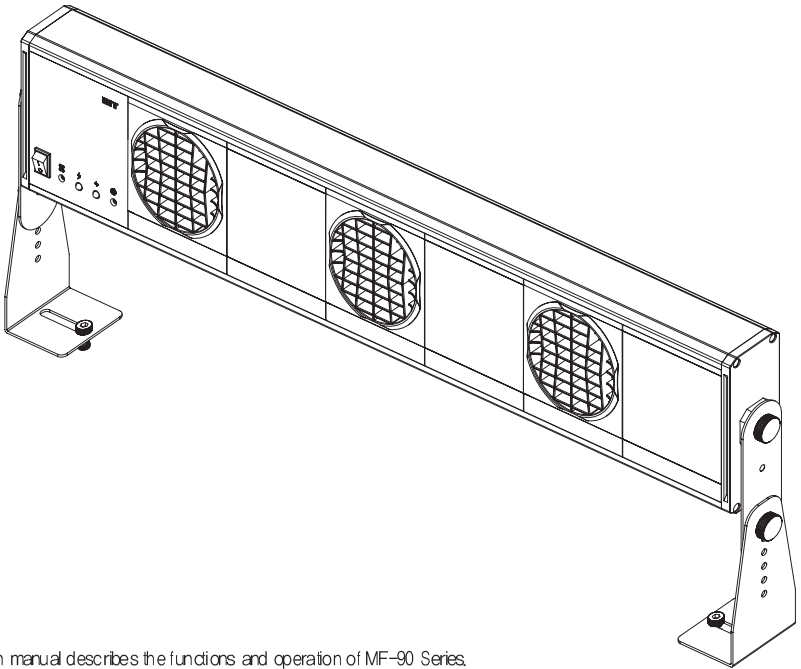


Instruction Manual

ION BLOWER MF-90 Series



This instruction manual describes the functions and operation of MF-90 Series.
Please read this manual carefully to ensure use and maximum performance of the product.
This product requires AC 110/220V or DC 24V power supply.
Check to make sure that you have the correct power supply.

CONTENTS

1_ Product Characteristics

1.1 MF-90 Series Introduction	03
1.2 ESD Elimination Performance	04
1.3 MF-90 Series Configurations	04
1.4 Product Nomenclature and Functions	06

2_ Product Installation

2.1 Installation Examples	07
2.2 Product Assembly and Installation	08
2.3 Installation Procedures	09
2.4 Precautions during Installation	09

3_ Product Use

3.1 Overview	10
3.2 Safety Procedures	11
3.3 Cleaning and Maintenance	11

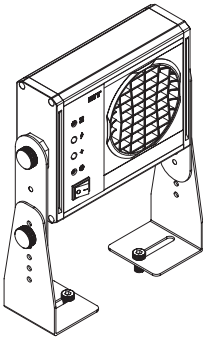
4_ Product Specifications

4.1 Product Configurations	12
4.2 Product Specifications	13

APPENDIX

Section 1_ Product Characteristics

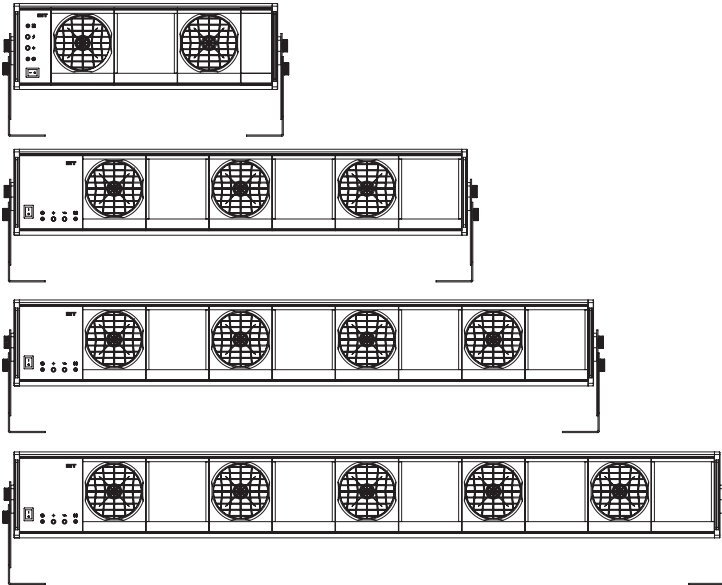
1.1 MF-90 Series Introduction



Thank you for purchasing MF-90 Series Fan Blowers from DT

MF-90 Series of fan blowers uses a process known as corona electronic discharge to generate plus(+) and negative(-) air ions which are then blown to the target object to neutralize any static electric charge thereon. The product is convenient to use and easy-to-install anywhere.

MF-90 Series offers a choice of blowers ranging from one to five fans. The blowers with two fans or more are remarkable in that the equipment length as well as spacing of fans can be easily reconfigured as needed. The controls allow easy adjustments of air output and ion balance to meet any specific requirements.



▲ Diagram MF-90 Series Models

MF-90 Series

ION BLOWER

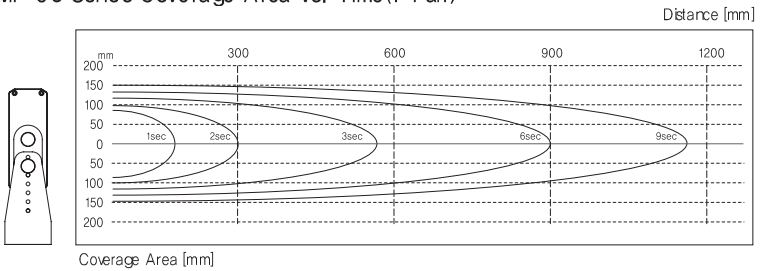
1.2 ESD Elimination Performance

1) Decay time vs. Distance(1-Fan)

Distance (cm)	Decay Time(sec)									
	1	2	3	4	5	6	7	8	9	10
30			2sec							
60				3.5sec						
90						6sec				
120									9sec	

- Decay time : $\pm 1,000V$ to $\pm 100V$
- Charged Plate Size : 150×150 mm
- Charged Plate Capacitance : 20pF
- Ambient Conditions : 25°C, 45%RH

2) MF-90 Series Coverage Area vs. Time(1-Fan)



1.3 MF-90 Series Configurations

Please check to see that you are in possession of the following:

- 1 Main body
- 2 Standard Bracket
- 3 AC Power Cable, 1800mm

⚠ Caution

Always check electrical specifications before connecting to power.

⚠ Caution

Connect to ground using the ground wire provided with DC power cable kit to ensure proper performance and to protect against electric shock.

1.3 MF-90 Series Configurations

4 DC Power Cable (Including ground wire), 1500mm



Caution Always check electrical specifications before connecting to power.

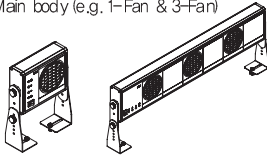


Caution Connect to ground using the ground wire provided to ensure proper product performance and to protect against possible electric shock.

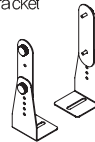
5 Instruction Manual

6 Brackets (sold separately)

1 Main body (e.g. 1-Fan & 3-Fan)



2 Standard Bracket



3 AC Power Cable, 1800mm



4 DC Power Cable (Including ground wire) 1500mm



5 Introduction Manual

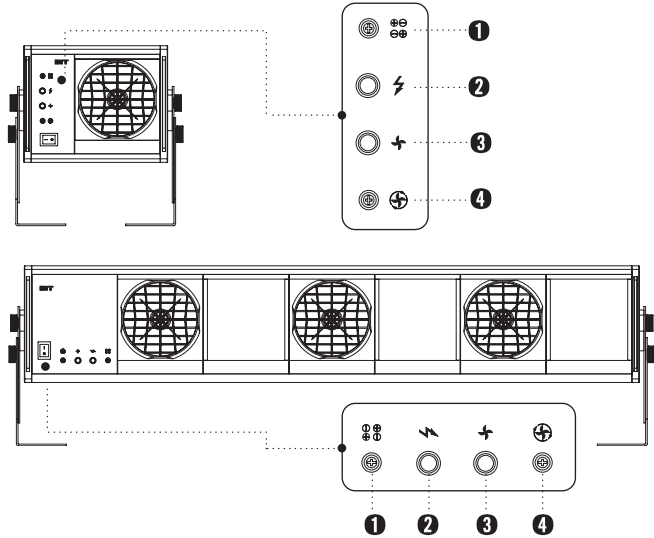


6 Brackets (sold separately)



1.4 Nomenclature and Functions

1.4.1 Controls



1.4.2 Display and Control Functions (Front-side)

1 Ion Balance Adjustments

Wait for 1 minute after turning on the power before checking ion balance. Adjust as needed by turning the knob clockwise or counterclockwise.

2 Output power alarm LED (Green or Red)

Shows the state of ion emissions.

LAMP	Red	Green	Check
HV	NG	Good	Ion Emission

3 Fan malfunction alarm LED (Green or Red)

Shows whether fans are functioning properly or not

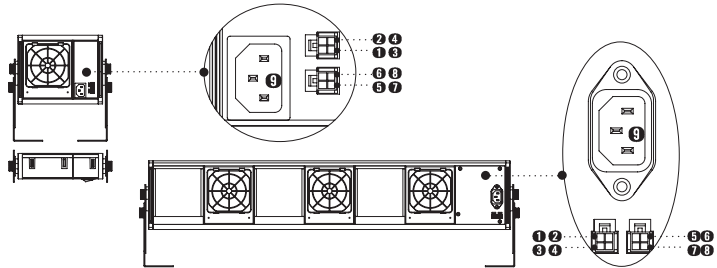
LAMP	Red	Green	Check
FAN	NG	Good	Fan Status

4 Air Speed Adjustment

To increase air speed use a Phillips screw driver to turn the knob in clockwise direction. To decrease air speed use a Phillips screw driver to turn the knob in counterclockwise direction.

1.4 Nomenclature and Functions

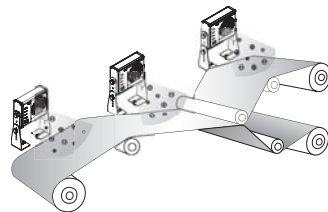
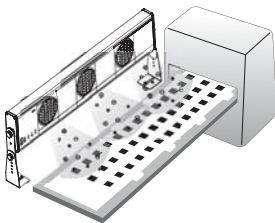
1.4.3 Input & Output connection (Back-side)



Code #	Description	Wire Color
①	Power Ground, Field Ground	Black
②	High Voltage Alarm Signal (Alarm output=HighDC5V))	White
③	Fan Alarm Signal (Alarm output=HighDC5V))	Yellow
④	+24VDC Power Supply	Red
⑤	Power Ground, Field Ground	Black
⑥	High Voltage Alarm Signal (Alarm output=HighDC5V))	White
⑦	Fan Alarm Signal (Alarm output=HighDC5V))	Yellow
⑧	+24VDC Power Supply	Red
⑨	AC Power Socket	

Section 2_ Product Installation

2.1 Installation Examples

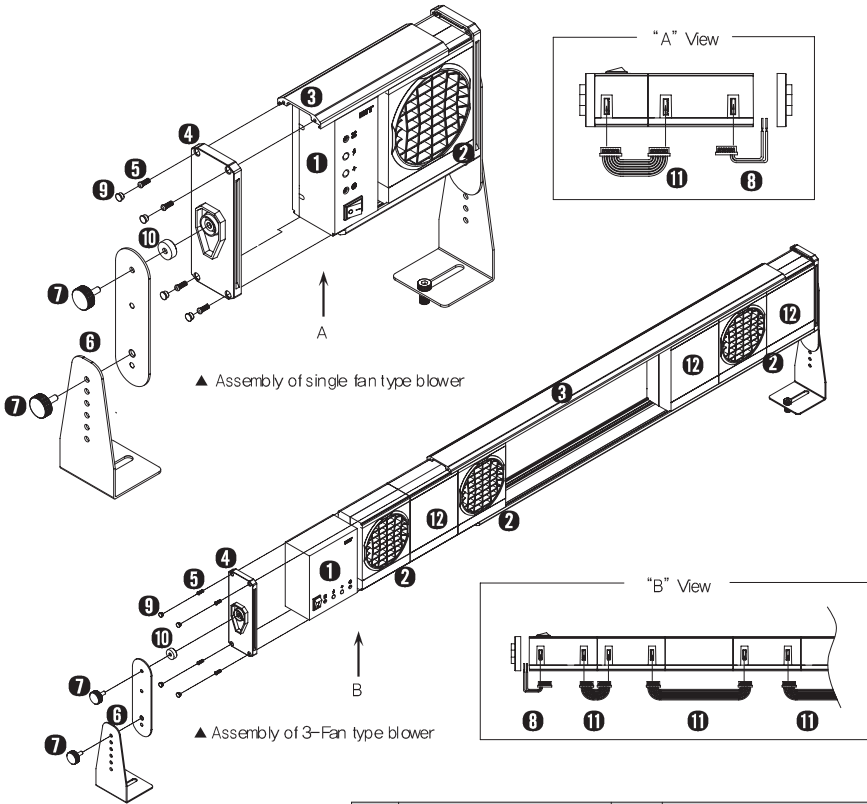


And other applications in electronics industry requiring static electricity elimination.

MF-90 Serie

ION BLOWER

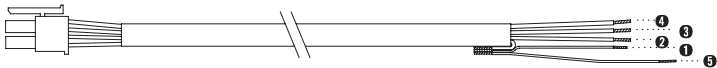
2.2 Product Assembly and Installation



번호	Parts	번호	Parts
1	Control Box	7	Knob for Bracket
2	Fan Module	8	Ground Connection Cable
3	Al Rail Sheet	9	Screw Cap
4	Side Cover	10	Rubber Packing
5	Screw for Side Cover	11	Module Connection Cable
6	Bracket Set	12	Space Box

2.3 Installation Procedures

- ① Install this blower making sure that no material obstruction lies between the blower and the target object.
- ② ALWAYS connect to ground using the grounding wire provided with DC power cable kit to ensure proper performance and to protect against possible electric shock.
 - ⚠ **Caution** AC Power cable must be plugged into a socket with proper ground connection. When using DC power cable, make sure to connect the grounding wire to ground.
- ③ Using either AC power cable or DC power cable, make sure to connect the grounding wire to ground.
- ④ When initially connected to power, HV Alarm LED comes on red for 0.5 seconds and then turns green. Green light indicates that static electricity is being removed from target object lying within the area effectively covered by ion emissions.



▲ Power Supply Cable

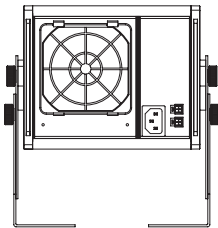
Code #	Wire Color	Description
①	Black	Power Ground (DC Power Ground)
②	White	High Voltage Alarm Signal
③	Yellow	Fan Alarm Signal
④	Red	+24VDC Power Supply
⑤	Black	Ground (Field Ground)

2.4 Precautions during Installation

- ① As safety precautions, do not place metallic objects or bare wires close to the product.
- ② Do not move the product, clean emitter pins or touch the product during operations.
- ③ Remove water, oil/grease, and dust from the vicinity and assure that the environmental conditions are maintained below 50°C temperature and 70% relative humidity.

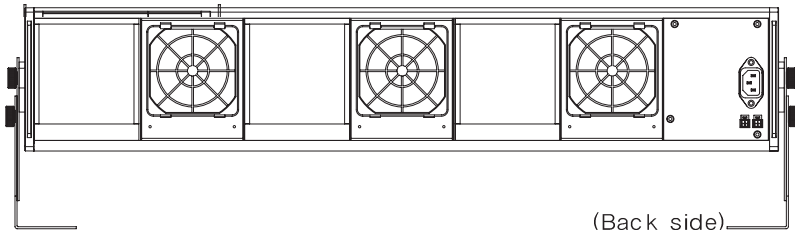
Section 3_ Product Use

3.1 Overview

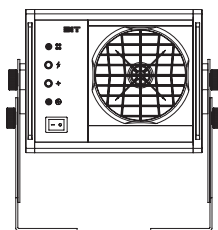


(Back side)

- ① Connect grounding wire to receptacle in the backside of main body.
- ② Use AC or DC power cable to connect to power supply.

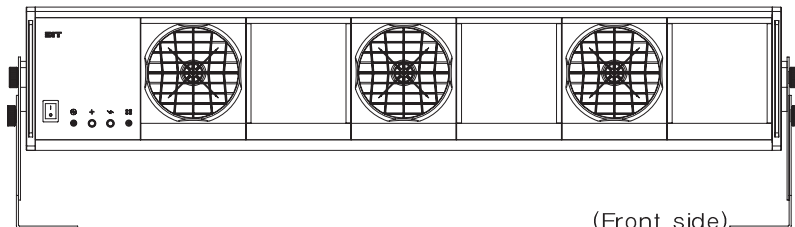


(Back side)



(Front side)

- ③ Ascertain if both H,V and Fan LED are lighted green to indicate that the product is operating properly.
- ④ Adjust airflow speed of the fan as is appropriate for the targeted use.
- ⑤ Check whether the state of ion balance is within $\pm 10V$. If outside the limit, use the knob to readjust and bring ion balance back within the limits.



(Front side)

3.2 Safety Instructions

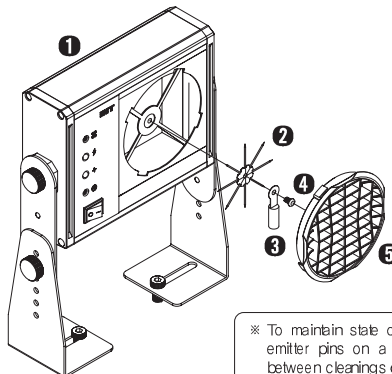
- ① Please re-confirm electrical specifications before connecting power cable.
- ② Beware of high voltage! Avoid touching the product during operation and never let hands or tools to come near the vicinity of the fans or air inlet/outlet.
- ③ Do not use chemicals or regular cleaning agents to clean the product.
- ④ Do not use the product for purpose other than electrostatic elimination.
- ⑤ Maintain safe distance from the product during the operation and do not inhale air in front of the air outlet for extended period of time.
- ⑥ Attach the product securely to a fixed object so it doesn't come off during the operation.
- ⑦ Install in only in places out of reach of children.
- ⑧ Avoid installing in places subject to direct sunlight or dusty conditions.

3.3 Cleaning & Maintenance

- ① Before cleaning or replacing emitter pins, first unplug power cable from the electric outlet.
- ② Fan cover is designed with notches so that the cover is easy to remove by grabbing and turning clockwise slightly using two fingers of the right hand.
- ③ Use brush or cotton Q-tips with alcohol to clean emitter pins making sure not to leave finger marks on the pins. Reassemble the product in the reverse order of the disassembly procedures.
- ④ In case emission pins need to be replaced, use a Philips screwdriver to turn in counterclockwise direction to unfasten the screw and replace the worn emitter plate with a new one (see Diagram below). Reassemble the product in the reverse order of the disassembly procedures.

! Caution Emission pins must be handled with care as they are very sharp.

#④ Part(Screw) in the Diagram below must not be substituted with screw from any supplier other than DIT.



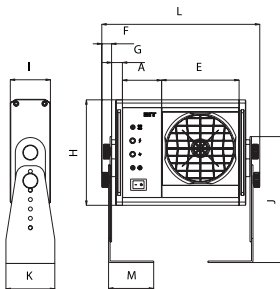
#	Parts
①	Body
②	Emission Pin Plate
③	High voltage Cable
④	SCREW
⑤	Fan Cover

※ To maintain state of top performance, it is important to clean emitter pins on a regular basis. (The recommended interval between cleanings depends on ambient conditions.)

Section 4_ Product Specifications

4.1 Product Configurations

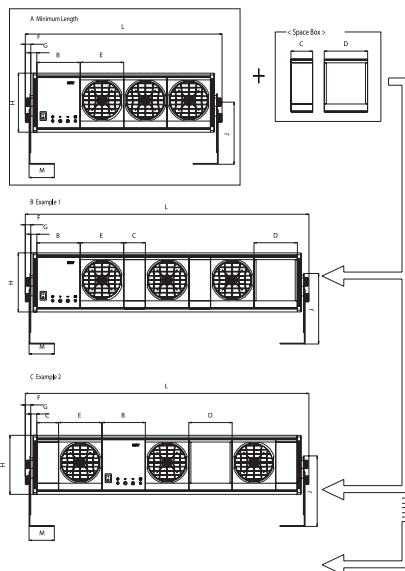
A. Single type



Category	Code	Length	Remarks
Control Board	A	51.50	1-FAN, 2-FAN
	B	103.00	2-FAN, 3-FAN, 4-FAN, 5-FAN
Space Box	C	51.50	
	D	103.00	
Fan Module	E	103.00	
Bracket Assy	F	13.00	
Side Cover	G	15.20	
Height	H	141.85	
Depth	I	53.75	
Bracket Length	J	167.45	
Bracket Width	K	65.00	
Bracket Depth	M	60.00	

B. Multi-Fan type (Example : 3-fan) (Customized Configurations)

Category	Code	Min. Length	
Blower Length	L	1-FAN	210.1
		2-FAN	313.1
		3-FAN	466.6
		4-FAN	569.6
		5-FAN	672.6



4.2 Product Specifications

Category	Specifications				
	1-FAN	2-FAN	3-FAN	4-FAN	5-FAN
Input Power	AC 100 ~ 240V or DC 24V				
Input Current	Max.0.4A	Max.0.4A	Max.0.6A	Max.0.8A	Max.1.2A
Air Flow	Max. 1.75m ³ /min per Fan				
Ozone	Less than 0.05ppm				
Displays	High Voltage LED(G/R), Fan LED(G/R)				
	G(Green) : Normal, R(Red) : Abnormal				
Adjustable Controls	Fan Speed (Manual), Ion Balance (Manual)				
Ambient Temperature	0°C ~ +50 °C				
Ambient Humidity	35 ~ 65%RH (No condensation)				
Weight	Appr.1Kg	Appr.1.9Kg	Appr.2.8Kg	Appr. 3.7Kg	Appr.4.61Kg

① Specifications were measured under following conditions.

Decay Time
±1000V to ±100V
Charge Plate Size
150 x 150mm
Charge Plate Capacitance
20pF
Ambient Conditions
25°C, 45%RH

Please contact DIT if you need more detailed information.

※ Note that the details included in this manual may be changed without notice due to product improvement.

APPENDIX

1. Troubleshooting

Trouble	Check
LED or Fans do not work	<ul style="list-style-type: none"> • Check connection to power outlet • Check cable connection to rear power inlet • If no result, then contact A/S for assistance
HV(High Voltage) LED is lighted red	If ion emission could not be detected after more than 5 seconds following power-on, then contact A/S for assistance
Fan LED is lighted red and Fans do not work	Please contact A/S for assistance
The air flow originating from the product imparts slight fishy odor	This is normal in high voltage working environment
Can smell something burning	Immediately unplug power cable and contact A/S for assistance

WARRANTIES AND DISCLAIMERS:

Dongil Technology Ltd. warrants the products to be free of defects in materials and workmanship for a period of one(1) year from the date of shipment. If any models or samples were shown to buyer, such models or samples were used merely to illustrate the general type and quality of the products and not to represent that the products would necessarily conform to said models or samples.

- (1) Any products found to be defective must be shipped to **Dongil Technology Ltd.** with all shipping costs paid by buyer or offered to **Dongil Technology Ltd.** for inspection and examination. Upon examination by **Dongil Technology Ltd.**, **Dongil Technology Ltd.** at its sole option, will refund the purchase price of, or repair or replace at no charge any products found to be defective. This warranty does not apply to any defects resulting from any action of buyer, including but not limited to improper installation, improper interfacing, improper repair, unauthorized modification, misapplication and mishandling, such as exposure to excessive current, heat, coldness, moisture, vibration or outdoors air. Components which wear are not warranted.
 - (2) **Dongil Technology Ltd.** is pleased to offer suggestions on the use of its various products. They are only suggestions, and it is buyer's responsibility to ascertain the fitness of the products for buyer's intended use. **Dongil Technology Ltd.** will not be responsible for any damages that may result from the use of the products.
 - (3) The products and any samples ("products/samples") supplied to buyer are not to be used internally in humans, for human transportation, as safety devices or fail-safe systems, unless their written specifications state otherwise. Should any products/samples be used in such a manner or misused in any way, **Dongil Technology Ltd.** assumes no responsibility, and additionally buyer will indemnify **Dongil Technology Ltd.** and hold **Dongil Technology Ltd.** harmless from any liability or damage whatsoever arising out of any misuse of the products/samples.
 - (4) Other than as stated herein, the products/samples are provided with no other warranties whatsoever. All express, implied, and statutory warranties, including, without limitation, the warranties of merchantability, fitness for a particular purpose, and non-infringement of proprietary rights, are expressly disclaimed. In no event shall **Dongil Technology Ltd.** and its affiliated entities be liable to any person or entity for any direct, indirect, incidental, punitive, special or consequential damages resulting from loss of use, business interruption, loss of information, loss or inaccuracy of data, loss of profits, loss of savings, the cost of procurement of substituted goods, services or technologies, or for any matter arising out of or in connection with the use or inability to use the products, even if **Dongil Technology Ltd.** or one of its affiliated entities was advised of a possible third party's claim for damages or any other claim against buyer. In some jurisdictions, some of the foregoing warranty disclaimers or damage limitations may not apply
-