

Heat Exchanger Instruction Manual

HX-0050A Series

Safety precautions

WARNING Incorrect handling may cause death or injury.

- Before connecting with the fittings, check if no damage or problems are found on the fittings. Connect properly and make sure that leak test is conducted before actual operation to prevent fluid from leaking into the atmosphere (Hereinafter, the fluid used is referred as "gas" or "fluid").
- DO NOT** apply any fluids corrosive to materials exposed to gas. Corrosion may cause fluid to leak into the atmosphere. Please confirm the physical properties of fluid before using.
- This device is not designed as an explosion-proof structure. **DO NOT** use this device in a place where explosion-proof structure are required. Doing so may cause fire or explosion.
- This device is not equipped with temperature control function. Please prepare a separate temperature control unit with burnout protection and overheating prevention. Failure to use a temperature control unit will result in fire destruction of the device.
- This device must be earthed before use. Otherwise, there is the risk of electric shock.
- This device is not protected against overcurrent. Overcurrent protection should be achieved attaching circuit breaker to heater cable.

CAUTION Incorrect handling can cause medium or slight injury or may cause damage to, or loss of, facilities or equipment.

- Observe the listed in the WARNING (above)
- Use out-of-spec power supply will cause electric shock, fire, and malfunction of device.
- This device is not designed to be waterproof. **DO NOT** locate this device outdoors or in a place where it may be splashed with water. Doing so may cause fire, trouble, or malfunction of the device.
- DO NOT** modify this device. Modification may result in fire or failure of the device.
- DO NOT** unplug connector while connected to a power source.
- This product is a precious device, please handle it carefully. Dropping down or handing it carelessly will cause damage. Please use assist instrument while moving or setting the device.
- Install current detector to detecting disconnection. Use of broken heater can cause fire hazard and/or malfunction.
- Please use a screw with depth of 5mm or less from the case surface when mounting HX by the hole on the surface (M3). It will crush the internal surface of the product, and lead the break.

1. Introduction

This manual explains basic operation of the HX-0050A Series (Hereinafter referred as "HX"). Please read through this manual carefully to familiarize yourself with the features of HX.

2. Summary

HX is an ultra-clean high efficiency fluid heat exchanger unit employing Lintec's high efficiency liquid vaporization technology with maximum operating temperature up to 200 °C and maximum heat exchange rate up to 50SLM. This apparatus is employed over a wide range of applications from semiconductor industries to other major manufacturing sectors.

3. Features

RoHS compliant.

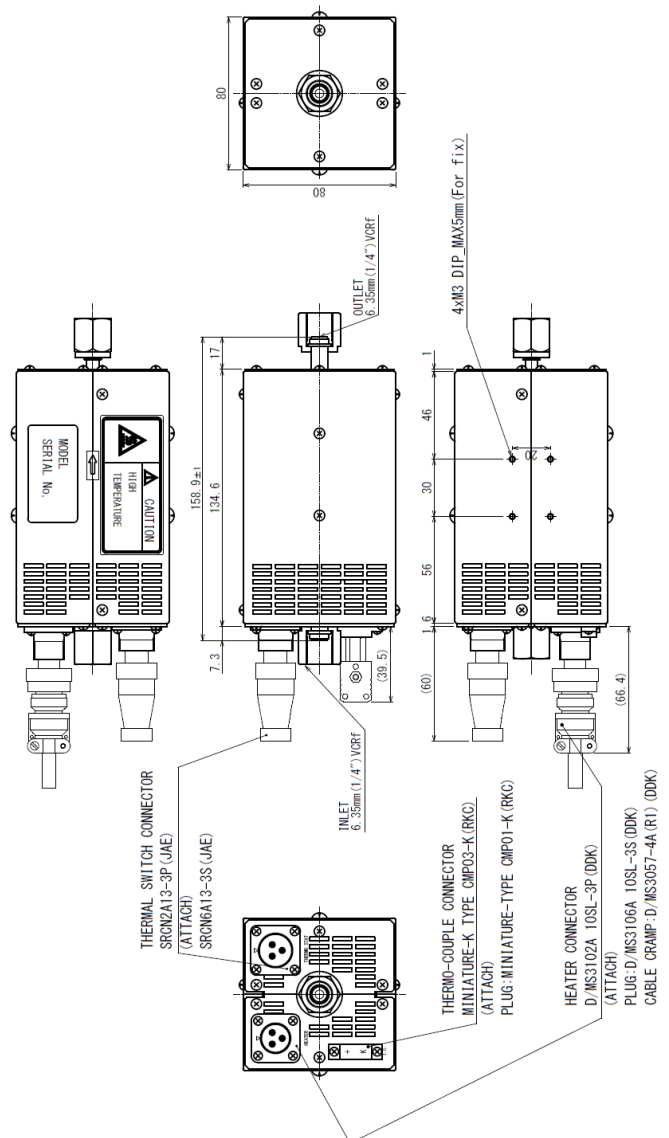
4. Specification/ Dimensions

(1) Specification

Product name		Heat Exchanger	
Model	HX-0050A -44VR2NL07***NNN	HX-0050A -44VR2NL10***NNN	
Flow rate (N2)	50SLM		
Pressure loss(N2)	9.8kPa(50SLM)		
Withstand pressure (Gauge pressure)	1 MPa(G)		
Leak integrity	1×10 ⁻¹¹ Pa·m ³ /sec (He)		
Operating condition	Continuous operation		
Operating temperature	15 to 50°C (Without dew condensation)		
Maximum operating temperature	T16	130°C	
	T23	200 °C	
Recommended temperature control method	PID control		
Material exposed to gas	Stainless steel 316L		
Fitting	Inlet: 6.35mm (1/4") VCR female Outlet: 6.35mm (1/4") VCR female		
Heater	120V 500W	240V 875W	
Power source	AC100 to 120V	AC200 to 240V	
Thermocouple	K type 1pc		
Thermal switch Specification (Note1)	T16	160 ± 3°C OPEN (Electric rating : AC125V/15A)	160 ± 3°C OPEN (Electric rating : AC250V/10A)
	T23	230 ± 10°C OPEN (Electric rating : AC125V/15A)	230 ± 10°C OPEN (Electric rating : AC250V/10A)
Mounting position	Free		
Weight	1.6kg		
Standard accessories	Heater connector(plug) : D/MS3106A 10SL-3S (DDK) Heater connector (cable clamp) :D/MS3057-4A(R1) (DDK) Thermal switch connector : SRCN6A13-3S (JAE) Thermocouple connector : CMP01-K (RKC)		

Note1) Specifications for thermal switch. Actual operation may vary depending on operating temperature.

(2) Dimensions



5. Ordering information

HX-0050A-44 VR2 N L07 T16 NNN

[1] [2] [3] [4] [5] [6] [7] [8]

[1] Heat Exchanger

[2] Model name

[3] Fittings size

44: IN 6.35mm, OUT 6.35mm

[4] Fittings type

VR2: VCR [IN female, OUT female]

[5] Internal treatment

N: No polishing (※ Standard Specification)

E: Electrical polishing (※ Option)

[6] Heater type

L07: AC120V 500W

L10: AC240V 875W

[7] Thermal switch

T16: 160 °C±3 °C

T23: 230 °C±10 °C

[8] Option

NNN: Standard specifications

※Notation other than NNN means customer options. The specification will be different from this specification sheet, please refer to specific specification sheet please notice that the pin assignment may be different as well.

6. Connection

(1) Heater Connectors

Equipped Connector : D/MS3102A 10SL-3P(DDK)

Applicable Connector (plug) : D/MS3106A 10SL-3S(DDK)

(cable clamp): D/MS3057-4A(R1)(DDK)

Pin No.	Signal name
A	120V 500W
B	240V 875W
C	CASE GND.

(2) Thermal switch Connectors

Equipped Connector : SRCN2A13-3P (JAE)

Applicable Connector : SRCN6A13-3S (JAE)

Pin No.	Signal name
1	N.C.
2	Thermal switch
3	

(3) Thermocouple Connectors

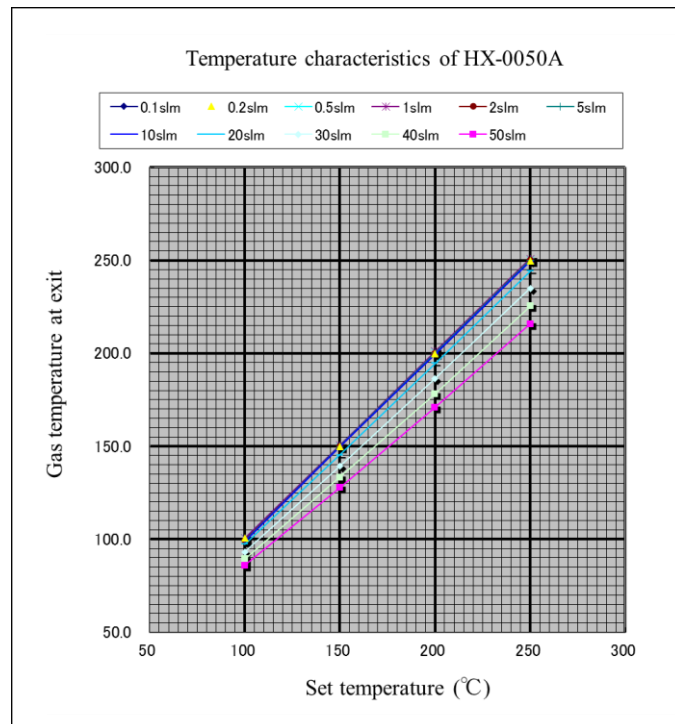
Equipped Connector : CMP03-K (RKC Instrument Inc.)

Applicable Connector : CMP01-K (RKC Instrument Inc.)

Pin No.	Signal name
K	K Type Thermocouple (-)
+	K Type Thermocouple (+)

7. Preparation and Operational Procedure

- Please prepare temperature control unit.120V500W(240V875W) heaters is used. Please take care with respect to the heater capacities. In addition, temperature control unit with built-in safety mechanisms is recommended for temperature control point. As the built-in thermocouple is K type, please select unit which is compatible with this type of thermocouple.
- Please be sure to use safety devices such as circuit breakers to prevent surge currents and short circuits.
- Please be careful to attach this device in the direction of the gas flow. In order to prevent a decrease in the gas temperature after heat exchange has taken place please heat the piping between the gas outlet and the next piece of machinery.
- Please carry out connections according to the connector table. This device has a built-in 230°C or 160 °C thermal switch.
- The heater can be affected by humidity during storage. Ensure that insulation resistance is above 20M ohm. If the insulation resistance drops below 20M ohm, dry the HX and ensure that insulation resistance is above 20M ohm.
- Supply power, set the temperature to the desired value using the temperature control units and allow 60 minutes for the device to stabilize after the set temperature has been reached. Even though the temperature control unit display temperature may be stable the temperature of the body of the device is not. In order to achieve good heat exchange efficiency please allow this device to stabilize before use.
- Estimated gas temperatures can be found from the graphs in the upper right. However, this data is for nitrogen gas and should not be applied as is to gases other than nitrogen. Please use this data only as a guide.



·Gas:N2

·Operating temperature:20°C

8. Product Warranty

(1) Period

This product is guaranteed for one year from the date of shipment. Defects are repaired according to the following regulations.

(2) Scope

Warranty coverage is restricted to this product only. Any other damage caused by HX is not covered.

(3) The following repairs are not covered by the warranty:

- Failure caused by product of gas or liquid used
- Failure caused by misuse (including careless operation), incorrect repair or modification
- Failure cause by falling or dropping after purchase
- Failure caused by fire, earthquake, flood, lightning or other natural disasters

Even if the warranty period is still in effect, repair service may not be provided in the following cases.

- When fluid or gas used in the product is unclear.
- The product is returned with fluid remaining inside, and safety cannot be confirmed.

This instruction manual is subject to revision without notice.

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