

HAKKO

HAKKO FX-781

N₂ GENERATOR

氮氣產生裝置

使用說明書

承蒙惠顧，謹致謝忱。

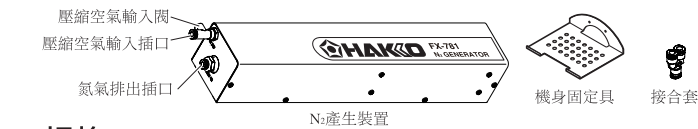
使用HAKKO FX-781之前，請詳閱本使用說明書，正確使用。
閱後請妥為收存，以備日後查閱。

English
中文
日文

1. 包裝清單及各部名稱

首先請確認包裝內容。

N ₂ 產生裝置.....1	接合套.....1
機身固定具.....4	使用說明書.....1



2. 規格

品名	HAKKO FX-781
產品編號	FX781-81
輸入空氣壓	0.3~0.7MPa
產生氮氣濃度	99.9% (最高值)
產生氮氣量	2.4 l/min. (輸入0.5MPa之壓縮空氣時，氮氣濃度98%)
外形尺寸	73 (W) × 407 (H) × 71 (L) mm (不含插口、閥)
重量	2 kg (不含機身固定具)

※ 規格及外觀有可能改良變更，恕不另行通知。

3. 安全及使用上的注意事項

本說明書注意事項區分為如下之「警告」「注意」二者加以表示。
請充分了解其內容後再閱讀本文。

警告： 濫用可能導致使用者死亡或負重傷。

注意： 濫用可能導致使用者受傷或對涉及物體造成實質破壞。

●為您本人安全著想，請嚴格遵守以下注意事項。

注意

本裝置為分離膜式之氮氣產生裝置，可自外部輸入壓縮空氣而產生高濃度之氮氣。

● 處理時請注意

- 避免落下、打擊等之衝擊，注意處理。
- 不作急速之加熱，冷卻。
- 不作主機之分解，改造。
- 保存場所避開高溫潮濕，保存於屋內或準此之場所。

- 在沒有得到相關負責人的許可下，經驗及知識不足者（包括兒童）請勿使用本產品。
- 請注意不要讓兒童碰觸到本產品。

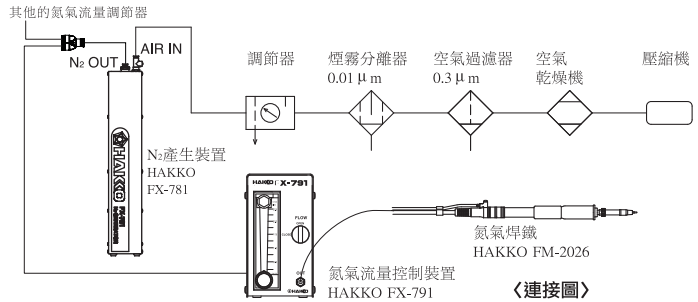
● 使用時請注意

1. 氮氣具有造成缺氧之危險性，故請遵照以下記之指示來使用。
 - 在通風良好，可換氣之場所使用之。
 - 氮氣之使用中請進行換氣。
 - 定期檢查氮氣之配管有無漏氣。
2. 自裝置周邊會排出高濃度之氧氣，故關於裝置之設置請注意以下各點。
 - 離開煙火或可燃物來設置。
 - 裝置之運轉中進行換氣。
 - 直接攸關人命之目的，不加以使用。
3. 本氮氣產生裝置由於長期使用，會又經常性的性能降低之情形，請注意之。
4. 本氮氣產生裝置係以自壓縮空氣取得高濃度氮氣為目的而製造者。請絕對不要使用於本目的以外。

4. 使用方法

1. 連接

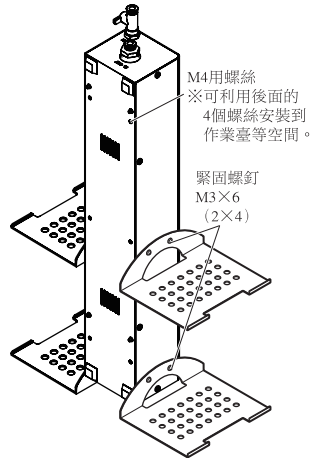
請參照以下之連接圖。將壓縮空氣輸入氮氣產生裝置（HAKKO FX-781），藉由AIR IN之閥的關閉而開始氮氣之排出。



4. 使用方法

2. 組裝例

可依照圖示進行組裝。



※將附屬之機身固定具以HAKKO FX-781所附之M3螺釘加以固定。

3. 流量調整

藉由連接圖所示流量控制閥來調節流量。

HAKKO FX-781依據所輸入壓縮空氣之壓力與所排出氮氣量來決定氮氣濃度。請參考下表。

		氮氣濃度
排出側一定	輸入壓縮空氣壓較高	較高
	輸入壓縮空氣壓較低	較低
輸入空氣壓一定	排出氮氣量較少	較高
	排出氮氣量較多	較低

請依照另外之HAKKO FX-781性能表來設定輸入壓縮空氣壓與氮氣排出量。

注意

以連接圖所示氮氣流量控制閥來進行氮氣之排出時，即使HAKKO FX-791之閥為關閉狀態，HAKKO FX-781之內部會呈現高壓。使用中，超時間關閉流量控制閥的話，請關閉HAKKO FX-781之壓縮空氣輸入閥，停止對HAKKO FX-781之壓縮空氣輸入。

4. 運轉結束

關閉HAKKO FX-781之壓縮空氣輸入閥。
請打開排出氣側之閥（含流量控制閥）。

注意

長時間、長期間停止時，請停止對HAKKO FX-781之壓縮空氣輸入，打開排出氣側之閥。

● 關於壓縮空氣

1. 對HAKKO FX-781輸入壓縮空氣之條件

輸入空氣壓	0.3~0.7MPa
輸入空氣必要量	10l/min.以上
輸入空氣溫度	5~50℃
最高使用環境溫度	60℃

2. 輸入壓縮空氣之狀態

- 相對濕度80%以下之乾燥空氣
- 不含各種煙霧、塵埃。
（空氣過濾器：使用0.3 μm以下 / 煙霧分離器：使用0.01 μm以下）
- 不含碳氫化合物類。
- 不含腐蝕性氣體（硫化氫，亞硫酸氣，氯化氫，氟等之強酸性氣）。
- 不含強鹼性氣體（胺，氨，苛性鹼等）。

5. 排除故障指南

● 不排出氮氣。

檢查： 未正確連接嗎？
處置： 請參考連接圖進行配管，使適當氣壓之空氣能輸入HAKKO FX-781。

檢查： 塵埃過濾器、煙霧過濾器髒污而使氣體無法流通嗎？
處置： 請將塵埃過濾器、煙霧過濾器加以清潔或更換。

檢查： 調節器、閥在正常發揮機能嗎？
處置： 請修理或更換之。

注意

HAKKO FX-781即使有適當氣壓之空氣輸入，氮氣未排出的話，主機有塵埃煙霧混入，而無法發揮機能。須由廠商更換內部之模組。又，誤將輸入壓縮空氣條件所記述有害氣體加以輸入，而使氮氣不排出，或排出量變少等的話，也必須更換模組。

HAKKO

HAKKO FX-781

N₂ generator

Instruction Manual

Thank you for purchasing HAKKO FX-781 N₂ generator.

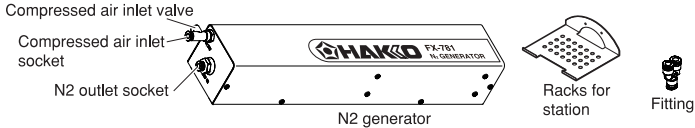
Please read this manual before operating the HAKKO FX-781.

Keep this manual readily accessible for reference.

1. PACKING LIST AND PART NAMES

Please check to make sure that all items listed below are included in the package.

N ₂ generator.....1	Fitting.....1
Racks for station.....4	Instruction manual.....1



2. SPECIFICATIONS

Name	HAKKO FX-781
Product number	FX781-81
Air supply pressure	0.3 - 0.7MPa
Concentration of generated N ₂	99.9% (Max.)
Amount of generated N ₂	2.4 l/min. (When compressed air of 0.5MPa is supplied at 25°C(77°F), the concentration of generated nitrogen is 98%.)
External dimensions	73 (W) × 407 (H) × 71 (L) mm / (2.9 × 16 × 2.8 in.)(w/o sockets and valve)
Weight	2 kg / (4.4 lb.) (w/o racks)

*Specifications and design are subject to change without notice.

3. SAFETY INSTRUCTIONS

Warnings, cautions and notes are placed at critical points in this manual to direct the operator's attention to significant items. They are defined as follows:

WARNING: Failure to comply with a WARNING may result in serious injury or death.

CAUTION: Failure to comply with a CAUTION may result in injury to the operator, or damage to the items involved. Two examples are given below.

● Be sure to comply with the following WARNINGS and CAUTIONS for your safety.

CAUTION

This N₂ generator uses membrane technology, which generates the nitrogen gas from externally-supplied compressed air.

● Cautions for handling the product

- Carefully handle the product, avoiding impact, such as a blow or dropping.
- Avoid rapid heating or cooling.
- Do not disassemble or modify the main body.
- Store the product indoors avoiding high temperature and humidity environments.

- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in safe way and understand the hazards involved.
- Children shall not play with the appliance.
- Cleaning and user maintenance shall not be made by children without supervision.

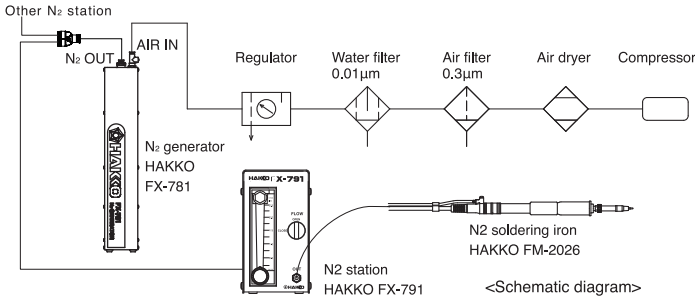
● Cautions for using the product

1. Follow the instructions below when using the product. The nitrogen gas can cause oxygen deprivation.
 - Use in a well-ventilated area.
 - Regularly check nitrogen gas discharge piping for leaks.
2. Be sure to note the following points when installing the product. Highly-concentrated nitrogen gas is discharged from the product into the surrounding area.
 - Keep away from flame and flammables.
 - Ventilate the work area when in use.
3. The product is intended to generate the highly-concentrated nitrogen gas from compressed air. Never use it for other than the intended application.

4. OPERATION

1. Connection

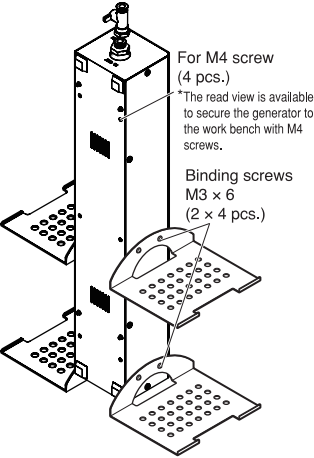
See the schematic diagram below for connection. To start discharging nitrogen gas, open the air IN valve and supply compressed air to the N₂ generator (HAKKO FX-781).



4. OPERATION

2. An example of setting-up

When the HAKKO FX-791 (N₂ station) is used as the nitrogen gas flow rate controller, the entire apparatus can be set up as shown in the figure below.



* Secure the racks on the HAKKO FX-781 using M3 screws.

3. Adjustment of the flow rate

The flow rate of nitrogen gas is adjusted through the flow rate control valve shown in the schematic diagram. The determination of the concentration of nitrogen gas generated by the HAKKO FX-781 depends on the pressure of supplied compressed air and the amount of discharged nitrogen gas. See the table below for detailed information.

		Concentration of N ₂
Amount of discharged N ₂ remains constant.	Pressure of supplied compressed air is high.	High
	Pressure of supplied compressed air is low.	Low
Pressure of supplied compressed air remains constant.	Discharged nitrogen gas is small in amount.	High
	Discharged nitrogen gas is large in amount.	Low

Determine the pressure of supplied compressed air and the amount of discharged nitrogen gas according to the HAKKO FX-781 performance table.

CAUTION

When using the HAKKO FX-791, the pressure of the HAKKO FX-781 will increase when the valve is closed. Close the compressed air IN valve of the HAKKO FX-781 to shut down the supply of compressed air if the flow control valve remains closed for a long period of time during operating.

4. End of the operation

Close the compressed air IN valve of the HAKKO FX-781. Open the valves on the side where the gas is discharged, including the flow rate control valve.

CAUTION

When the N₂ generator is not used for a prolonged period of time, stop supplying compressed air to the HAKKO FX-781 and open the valves on the side where the gas is discharged.

● Compressed air

1. Requirements on compressed air supplied to the HAKKO FX-781

Pressure of supplied compressed air	0.3 - 0.7MPa
Amount of compressed air needed to be supplied	10l/min. or more
Temperature of the supplied compressed air	5 - 50°C (41 - 122°F)
Maximum operating temperature	60°C (140°F)

2. Conditions of supplied compressed air

- Clean, dry air with a relative humidity of 80% or lower Air filter Pore size of the filter should not exceed 0.3μm. Water filter Pore size of the filter should not exceed 0.01μm.

The air supply shall not contain any of the following:

- Hydrocarbons
- Any corrosive gases (strong acid gases, such as hydrogen sulfide, sulfurous acid gas, hydrogen chloride and fluorine)
- Strongly alkaline gases (such as amines, ammonia and caustic soda)

5. TROUBLESHOOTING

● Nitrogen gas is not discharged.
CHECK: Is each component properly connected?
ACTION: Verify that air is supplied to the HAKKO FX-781 per the schematic diagram.

CHECK: Is the dust or air filter dirty?
ACTION: Clean or replace the dirty filter.

CHECK: Do the regulator and valves function properly?
ACTION: Repair or replace the nonfunctioning valve(s).

CAUTION

If nitrogen gas is not discharged even with a properly-compressed air supplied, the supplied air may be contaminated with dust or moisture. In such a case, the internal module of the HAKKO FX-781 needs to be replaced by the manufacturer. Module replacement is also required if the amount of discharged nitrogen gas is small or completely zero due to supply of one of the aggressive gases mentioned in "Conditions of supplied compressed air" above.

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