

SINCE
1977

www.jinhwaenc.com

for preventing fire to Incoming Panels/
Distributing Panels/Electric Panels

Automatic Gas Extinguisher Unit

Formally Approved by Korea Fire Equipment Inspection Corporation (KFI)



JINHWA E&C
JINHWA ENGINEERING & CONSTRUCTION CO., LTD.

The History of JINHWA

2020s

Designated an Excellent Partner of Halla
Awarding of Head of Fire Department Award (No. 18-12)
Designated an Excellent Partner of Halla
Designated an Excellent Partner of Halla for Safety
Designated an Excellent Partner of Halla
Designated an Excellent Partner of POSCO E&C
Designated an Excellent Partner of POSCO E&C
Acquisition of Environmental Certification ISO 14001:2004, Safety Certification, and OHSAS Certification 18001:2007
Awarded the Director of National Emergency Management Award

2010s

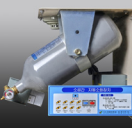
CEO received the Presidential Award (No. 15301)
Awarded the Minister of Ministry of Education, Science and Technology Award (No. 8172)
Expansion of Capital (1 billion won)
Acquisition of Innovative Small and Medium Business Certificates
Designated an Excellent Construction Company by COKT
Acquired certification as a Promising Small and Medium Business of Goyang-si, Gyeonggi-do
Awarded the Presidential Award (Ministry of Government Administration and Home Affairs No. 143745)
Acquisition of the Venture Company Certificate (No. 200112471-6814)
Company Name Changed from Jinhwa Disaster Prevention to Jinhwa E&C

1990s

Expansion of Capital (500 million won)
Expansion of Capital (300 million won)
Acquired the Quality Management System Certificate ISO 9001:2009
Signed the Joint Development Program Agreement for Small and Medium Business Support with the Korean Electric Power Corporation
Technological Partnership with the Fire Control of Japan
Establishment of the Jinhwa Disaster Prevention and Merging with Jinhwa Disaster Prevention Industries

1977

Established Jinhwa Disaster Prevention Industries

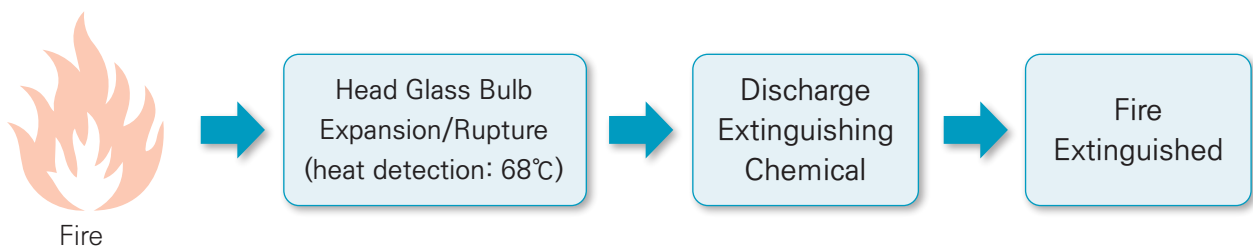


Product Features

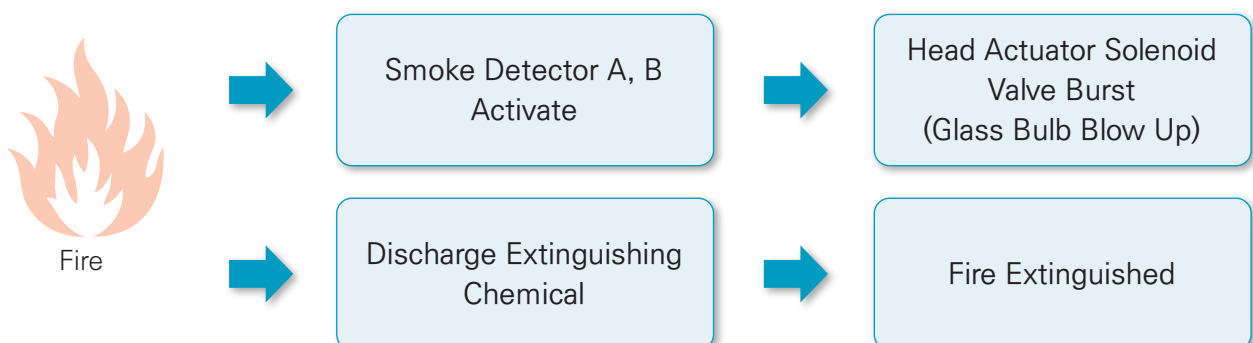
Components	Features
Extinguishing Chemicals	<ul style="list-style-type: none"> Application of a clean extinguishing chemical (HFC-227ea, HFC-125)
Cylinder (CrMo)	<ul style="list-style-type: none"> High-pressure tested by the Korea Gas Safety Corporation (KGS) Use of CE certified products (CE 0036) Outstanding test pressure (test pressure: 31.5 MPa) from chrome-molybden steel (CrMo)
Chamber Valve	<ul style="list-style-type: none"> High-pressure tested by Korea Gas Safety Corporation (KGS)
Heat Detection Head Actuator	<ul style="list-style-type: none"> Glass bulb type head (rated operation temperature: 68°C) Solenoid actuation caused by the activation of smoke detectors (A, B)
Smoke Detector	<ul style="list-style-type: none"> Photoelectric smoke detector A, B
Contact Signal	<ul style="list-style-type: none"> 0-voltage contact drawable (detector A, B/discharge)
Backup Power	<ul style="list-style-type: none"> Application of the DC24V Ni-Cd battery (operation of more than 60 minutes after power failure)

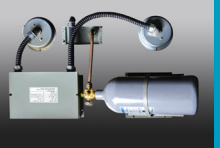
Fire Detection and Operation Principles

► Heat Detection



► Smoke Detection





Automatic Gas Extinguisher Unit(HFC-227ea)

1. JHAF-1H7



Extinguishing Chemical : HFC-227ea
 Amount : 1.0kg
 Detection : Heat detection
 Protection Volume : 1.215m³
 Chamber Volume : 1.1L
 Installation Type : Integrated
 Total Weight : 3.8kg(chamber+chemical+valve)
 Signal Contact : Available (Contact method using pressure gauge)
 Alarm : Available (installation of accessory)
 Multiple Cylinder Interlink : Unavailable

2. JHAF-2H7



Extinguishing Chemical : HFC-227ea
 Amount : 2.0kg
 Detection : Heat detection
 Protection Volume : 2.88m³
 Chamber Volume : 1.9L
 Installation Type : Integrated
 Total Weight : 5.3kg(chamber+chemical+valve)
 Signal Contact : Available (Contact method using pressure gauge)
 Alarm : Available (installation of accessory)
 Multiple Cylinder Interlink : Unavailable

3. JHAF-2S7

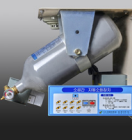


Extinguishing Chemical : HFC-227ea
 Amount : 2.0kg
 Detection : Heat + Smoke Detection
 Protection Volume : 2.88m³
 Chamber Volume : 1.9L
 Installation Type : Assembly Type or Integrated Type
 Total Weight : 5.3kg(chamber+chemical+valve)
 Signal Contact : Available(Control Panel)
 Alarm : Available(Alarm Signal transmission via Control Panel)
 Multiple Cylinder Interlink : Available

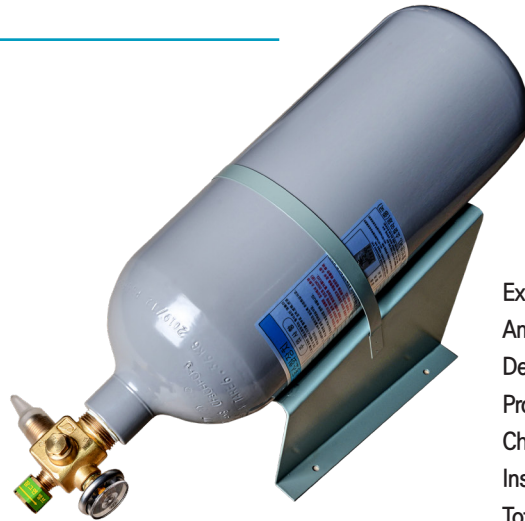
4. JHAF-4H7



Extinguishing Chemical : HFC-227ea
 Amount : 4.0kg
 Detection : Heat detection
 Protection Volume : 5.625m³
 Chamber Volume : 3.7L
 Installation Type : Integrated
 Total Weight : 10.4kg(chamber+chemical+valve)
 Signal Contact : Available (Contact method using pressure gauge)
 Alarm : Available (installation of accessory)
 Linking : Unavailable



5. JHAF-4S7



Extinguishing Chemical : HFC-227ea
Amount : 4.0kg
Detection : Heat + Smoke Detection
Protection Volume : 5.625m³
Chamber Volume : 3.7L
Installation Type : Assembly Type or Integrated Type
Total Weight : 10.4kg(chamber+chemical+valve)
Signal Contact : Available(Control Panel)
Alarm : Available(Alarm Signal transmission via Control Panel)
Multiple Cylinder Interlink : Available

Automatic Gas Extinguisher Unit(HFC-125)

1. JHAF-025H5

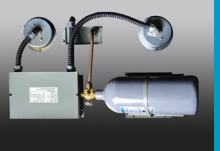


Extinguishing Chemical : HFC-125
Amount : 0.25kg
Detection : Heat detection
Protection Volume : 0.36m³
Chamber Volume : 0.29L
Installation Type : Assembly Type or Integrated Type
Total Weight : 0.88kg(chamber+chemical+valve)
Signal Contact : Available (Contact method using pressure gauge)
Alarm : Available (installation of accessory)
Multiple Cylinder Interlink : Unavailable

2. JHAF-06H5



Extinguishing Chemical : HFC-125
Amount : 0.6kg
Detection : Heat detection
Protection Volume : 1.215m³
Chamber Volume : 0.7L
Installation Type : Integrated
Total Weight : 1.65kg(chamber+chemical+valve)
Signal Contact : Available (Contact method using pressure gauge)
Alarm : Available (installation of accessory)
Multiple Cylinder Interlink : Unavailable



Automatic Gas Extinguisher Unit(HFC-125)

3. JHAF-06S5



Extinguishing Chemical : HFC-125
 Amount : 0.6kg
 Detection : Heat + Smoke Detection
 Protection Volume : 1.215m³
 Chamber Volume : 0.7L
 Installation Type : Integrated
 Total Weight : 1.65kg(chamber+chemical+valve)
 Signal Contact : Available(Control Panel)
 Alarm : Available(Alarm Signal transmission via Control Panel)
 Multiple Cylinder Interlink : Available

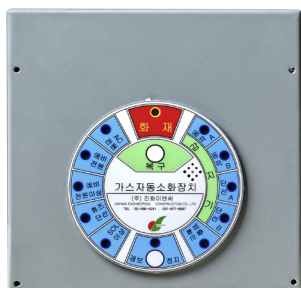


4. JHAF-16H5



Extinguishing Chemical : HFC-125
 Amount : 1.6kg
 Detection : Heat detection
 Protection Volume : 2.88m³
 Chamber Volume : 1.9L
 Installation Type : Integrated
 Total Weight : 5kg(chamber+chemical+valve)
 Signal Contact : Available (Contact method using pressure gauge)
 Alarm : Available (installation of accessory)
 Multiple Cylinder Interlink : Unavailable

5. JHAF-16S5



Extinguishing Chemical : HFC-125
 Amount : 1.6kg
 Detection : Heat + Smoke Detection
 Protection Volume : 2.88m³
 Chamber Volume : 1.9L
 Installation Type : Assembly Type or Integrated Type
 Total Weight : 5.0kg(chamber+chemical+valve)
 Signal Contact : Available(Control Panel)
 Alarm : Available(Alarm Signal transmission via Control Panel)
 Multiple Cylinder Interlink : Available

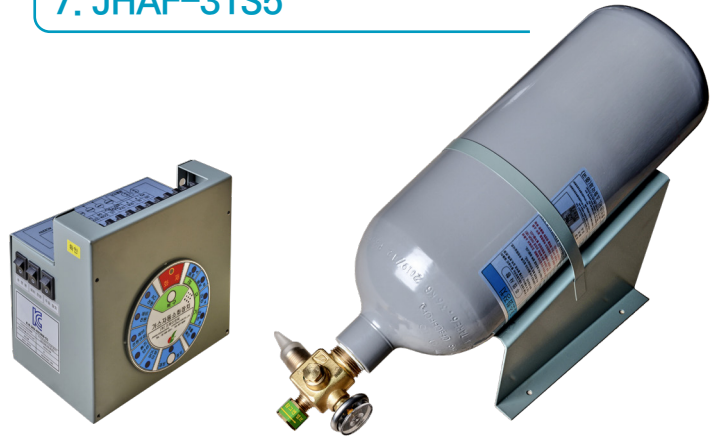


6. JHAF-31H5



Extinguishing Chemical : HFC-125
Amount : 3.1kg
Detection : Heat detection
Protection Volume : 5.625m³
Chamber Volume : 3.7L
Installation Type : Integrated
Total Weight : 9.5kg(chamber+chemical+valve)
Signal Contact : Available (Contact method using pressure gauge)
Alarm : Available (installation of accessory)
Multiple Cylinder Interlink : Unavailable

7. JHAF-31S5



Extinguishing Chemical : HFC-125
Amount : 3.1kg
Detection : Heat + Smoke Detection
Protection Volume : 2.88m³
Chamber Volume : 3.7L
Installation Type : Assembly Type or Integrated Type
Total Weight : 9.5kg(chamber+chemical+valve)
Signal Contact : Available(Control Panel)
Alarm : Available(Alarm Signal transmission via Control Panel)
Multiple Cylinder Interlink : Available

Accessory

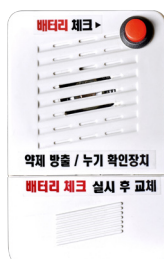
All In One Box Type(Normal)



All In One Box Type(Window)

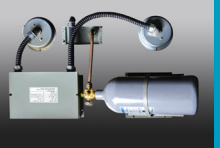


Alarm Unit



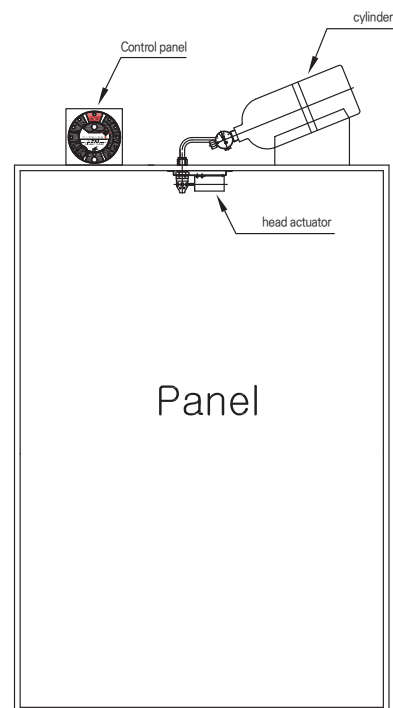
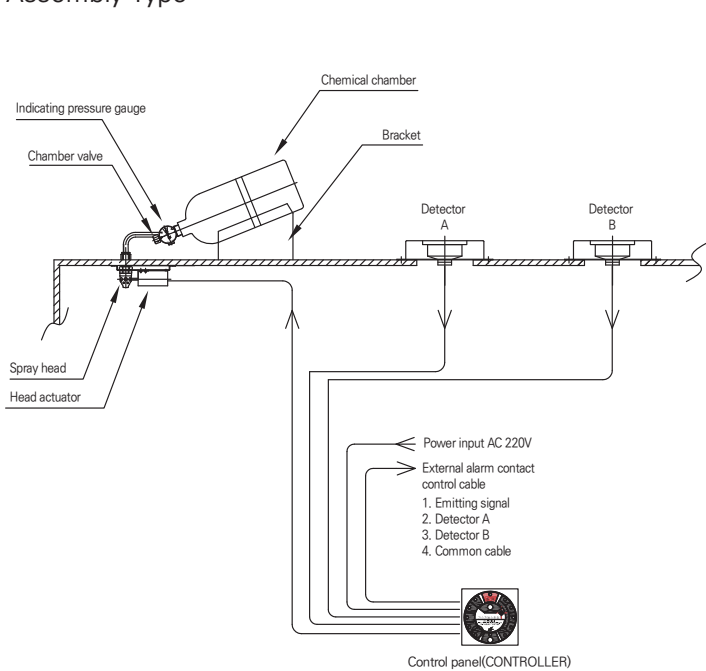
Digital Thermometer



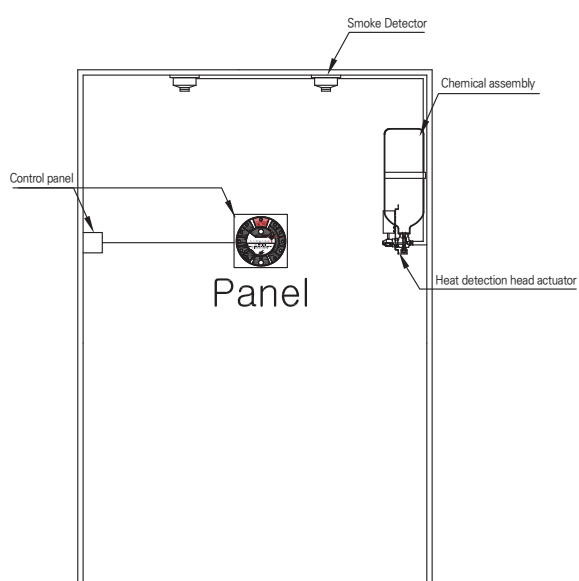
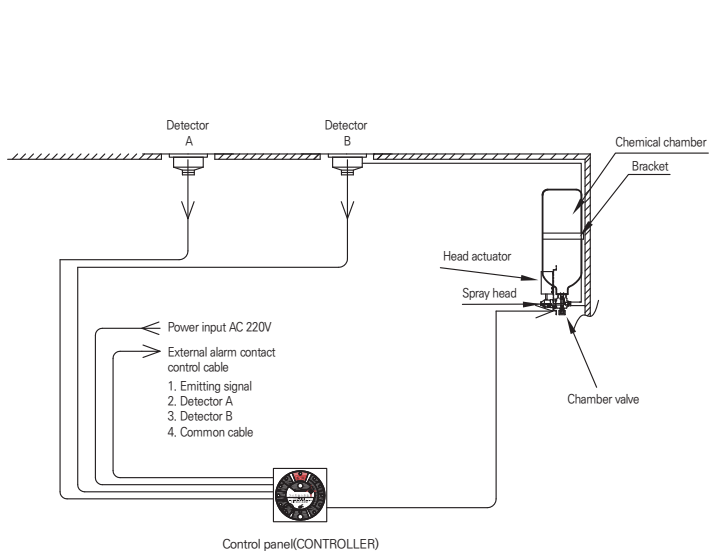


Product System Diagram

Assembly Type

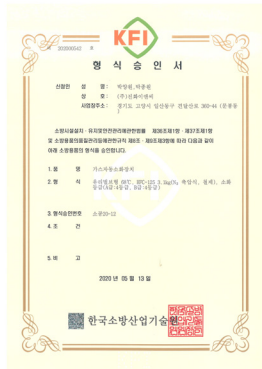


Integrated Type

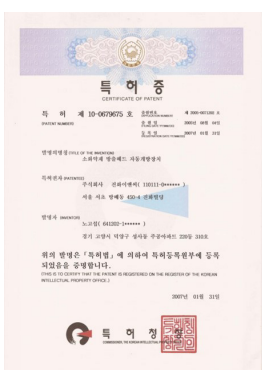
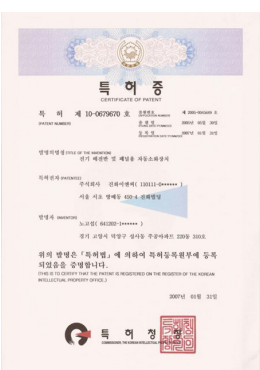


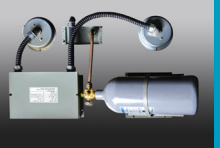


Formally Approval Certificate from the Korea Fire Equipment Inspection Corporation (KFI)



Patents





Automatic Gas Extinguisher Unit Activation Cases

Case 1

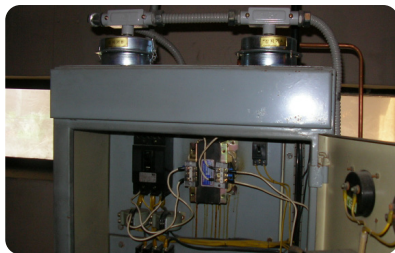


Location : 000 Unit, 000 Company
Date : 2013. 02.

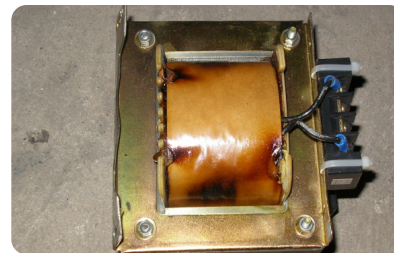
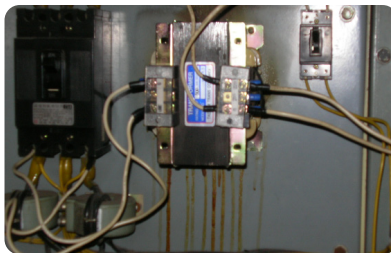


Fire caused by an overheating of the surge protector in the distribution panel. Fire spread to the door **melting down the protection relay cable**, but the extinguisher activated properly, suppressing the spread early on.

Case 2



Location : 000Station, 00Corporation
Date : 2016. 01.



The transformer on the top of the MCC panel caught on fire due to the overheating of internal coils. Extinguishing chemicals were discharged on location, suppressing the fire early on with only partial damage to the **transformer**.

Case 3



Location : 000Vehicle Base, 00Corporation
Date : 2017. 02.



ATS unit of the distribution unit generated a large amount of smoke due to contact overheating by abnormal currents. The extinguisher activated and suppressed the situation.

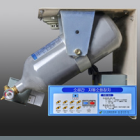
Case 4



Location : 000 Station, 0000 Corporation
Date : 2018. 03.



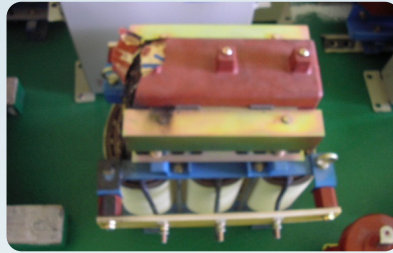
Fire due to PT (Potential Transformer) overheating on the high-voltage switch panel generated a large amount of smoke. Smoke spread through openings of the BUS, causing the extinguishers on the left and right panels. The extinguishers activated properly and suppressed the situation early on.



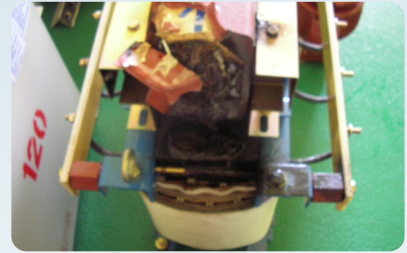
■ Case 5



Location : 000 Unit, 0000 Company
Date : 2019. 5.



Overload on the high-voltage condenser unit coil resulted in an explosion, and the smoke generated from it activated the extinguisher, suppressing the situation early on.



■ Case 6

1. Location : 0000 Transformer Station, 00 Corporation
Date : 2016. 08.
Details : Fire caused by MCSG overheating was suppressed by the properly operating extinguisher
2. Location : 0000 Transformer Station, 00 Corporation
Date : 2017. 05.
Details : Fire caused by Master BCT CØ damage was suppressed by the properly operating extinguisher
3. Location : 0000 Transformer Station, 00 Corporation
Date : 2018. 07.
Details : MCSG Fire on Miwon D/L #1 BUS was suppressed by the properly operating extinguisher

Installation Locations

- Distribution units at power generators and transformer units, and other electric facilities
- Machinery with potential fire due to the overheating of engine rooms (engine, transmission, etc.)
- Underground utility tunnels, unmanned electric rooms, electronics, and communication equipment rooms
- Industrial machine rooms, equipment electric panels

Major Performances

- Seoul Transportation Corporation, Regional Subway Corporation and Railroad Corporation
- Korea Water Resources Corporation and Regional Government Sewage Treatment Plants
- Korea Electric Power Corporation, Korea Airports Corporation
- KT Telecommunications
- Electric Rooms at the Production Plants of Private Companies
- Others (Stock Exchange, Shopping Malls)

