



شركة أزيدك
لأجهزة السلامة

Title

Material Submittal for Malleable Iron
Pipe Fitting

Brand

Hitachi



شركة أزيدك
لأجهزة السلامة

Title

Material Submittal for Fire
Suppression System

Brand

Hood Safer – Turkey



HoodSafer
Kitchen Protection Experts



شركة أزيدك
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Introduction.

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فاكس تحويلة: 111-: 0581444606

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1. WHAT IS THE KITCHEN FIRE SYSTEM

In places where very intensive work is carried out at all hours of the day in the kitchens of buildings such as hotels, restaurants, hospitals, military buildings, shopping malls, schools, hospitals, it is very difficult to extinguish the fat layers formed by the accumulation and freezing of oily food vapors in the hood in case of a possible fire. Automatic hood extinguishing systems have been developed to protect cooking groups, hoods and chimneys in kitchens against fire danger.

2. WHY IT IS IMPORTANT

Hood fire extinguishing systems are a vital system that allows you to take the necessary safety measures for kitchens. Kitchen equipment will not be compensated for prolonged exposure to fire in the event of a possible fire. Rapid intervention to fire is realized with hood fire extinguishing systems. Thus, the problem is solved without loss of life and property and without damaging the equipment.

3. WHAT IS THE STANDARD FOR THE SYSTEM?

These systems must be certified in accordance with international fire standards (EN 17446, UL300). According to the type of gas used, Gas Detectors must be available in kitchens.

4. WHERE IT SHOULD BE APPLIED

If there are any cooking appliances under the hoods in the kitchens of shopping malls, kitchens located in high-rise buildings and catering factories, except for residential buildings, an automatic extinguishing system with gas shut-off and electric signal sending feature shall be installed.

5. HOW THE SYSTEM SHOULD BEEN CHOOSE

The characteristics of the fixed fire extinguishing systems and installations to be installed, the type, quantity and placement of the equipment to be used; it is determined by the type of fire of the building and the materials that may be present in the building. All equipment to be used in the system must be certified.



Everything OK at the ? kitchen

Kitchen fire extinguishing systems available in the market today, need a pressurized auxiliary component such as a pressurized cartridge, pressurized tubing, pressurized hose etc. for activation.

Hoodsafer does not need a pressurized auxiliary component for activation, as it works completely mechanically and hydraulically.

For this reason, it is a secure system that is fully guaranteed to work.



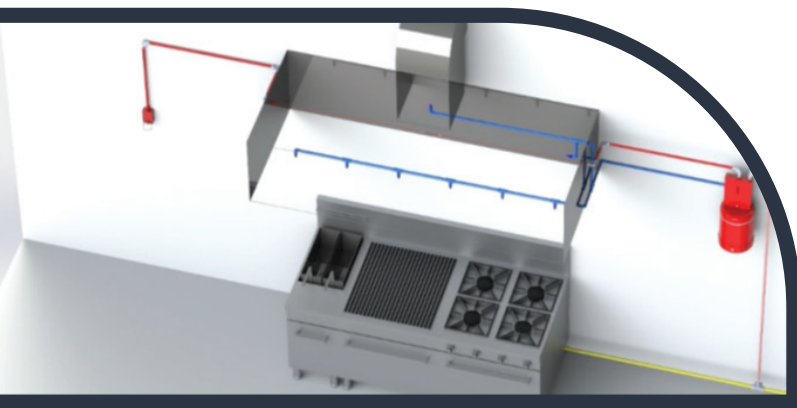
World's first

EN:17446-2021

certified kitchen fire
suppression system.

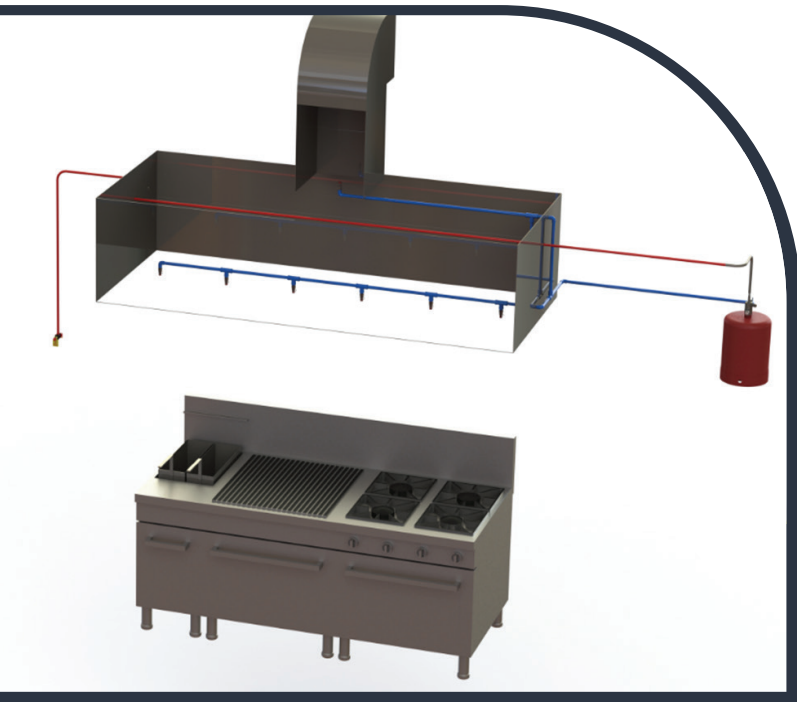
Hoodsafer HS Mechanical Series

- World's first EN:17446-2021 certified mechanical system.
- No pressurized components needed for activation.
- Fast and precise mechanical fire detection.
- Mikroswitch included as standard.
- Gas shut-off valve (mechanical or electrical) applicable.
- Multi cylinder application up to 5 cylinders.
- Patented technique.
- Easy to install
- Easy to maintain and service.
- World's simplest hydraulic calculation developed by Hoodsafer.
- System design, piping and flow calculation is easy.
- 8 flow point and 16 flow point options.
- Laser marked 2 types of nozzles.
- Low cylinder pressure (15 bar)
- System cylinders can be delivered pressurized.



Hoodsafer **HSP** Pneumactical Series

- World's first EN:17446-2021 certified pneumactical system.
- Fast and precise pneumactical detection.
- Pressure switch included as standard.
- Electrical gas shut-off valve applicable.
- Multi cylinder application up to 2 cylinders.
- Easy to install.
- Easy to maintain and service.
- World's simplest hydraulic calculation developed by **Hoodsafer**.
- System design , piping and flow calculation is easy.
- 8 flow point and 16 flow point options.
- Laser marked 2 types of nozzles.
- Low cylinder pressure (15 bar)
- System cylinders can be delivered pressurized..





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Hood Safer Catalogues.

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HS Series Catalogue.

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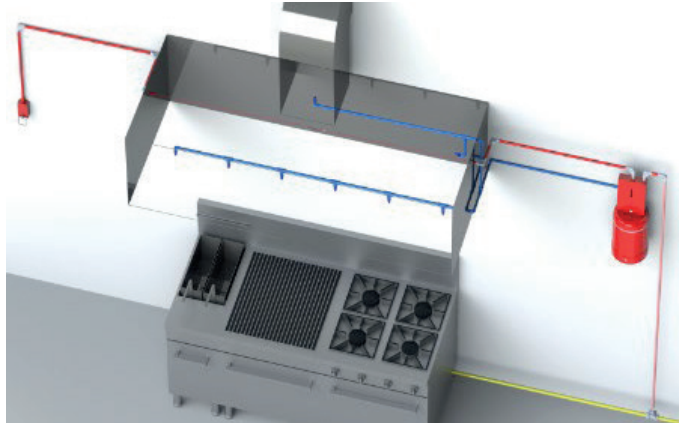


HS SERIES CATALOG & COMPONENTS' LIST

HS8

8 Flowpoint Fire Suppression System

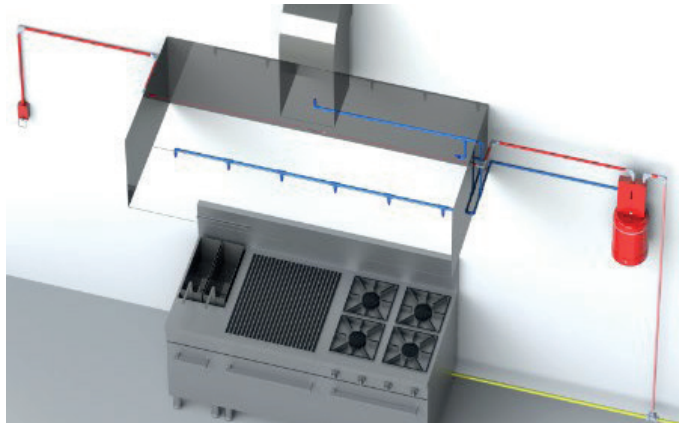
- 8 Flowpoint fire suppression system
- Suitable for hoods with max. 2.4 m* hood length.
- 10 lt wet chemical
- 8 pcs. Nozzles
- 1 pcs. Thermobulb
- 3 pcs. Corner Pulleys
- 1 pcs. Manual pull station
- 1 pcs. Cylinder hang kit



HS16

16 Flowpoint Fire Suppression System

- 16 Flowpoint fire suppression system
- Suitable for hoods with max. 4.8 m* hood length.
- 20 lt wet chemical
- 16 pcs. Nozzles
- 3 pcs. Thermobulb
- 5 pcs. Corner Pulleys
- 1 pcs. Manual pull station
- 1 pcs. Cylinder hang kit



- Calculation for maximum hood dimensions may change according to hood features.
Please refer to Hoodsafer Technical Manual.



System Components

Part Code	Part Name	Explanation / Details	Image / Picture
P900	Corner Pulley	Corner Pulley Package quantity : 10 pcs.	
P180	Cylinder Hang Kit	Complete Assembly 1 pcs. Cylinder Hang 1 pcs. Fixing belt 6 pcs. Screw 6 pcs. Anchor Package quantity : 1 pcs.	
P300	Manual Pull Station	Complete Assembly Package quantity : 1 pcs.	
P400	Thermobulb Kit	1 pcs. 182 C Thermobulb 2 pcs. Aluminum Collet 2 pcs. S hooks Package quantity : 1 pcs.	
P500	Thermobulb Kit	1 pcs. 260 C Thermobulb 2 pcs. Aluminum Collet 2 pcs. S hooks Package quantity : 1 pcs.	

System Components

Part Code	Part Name	Explanation / Details	Image / Picture
P600	Spray Nozzle	1 pcs. Spray Nozzle 1 pcs. Nozzle Cap Package quantity : 15 pcs.	
P350	Pull Pin Kit	1 pcs. Pull Pin with handle 1 pcs. Housing Screw 2 pcs. Aluminum Collet 2 pcs. Thermoplastic Seal 4 pcs. Screw 4 pcs. Anchor Package quantity : 1 pcs.	
P200	Microswitch Kit	1 pcs. Microswitch Kit Package quantity : 1 pcs.	
P602	Nozzle Cap	Thermoset Nozzle Cap Package quantity : 10 pcs.	
P116	Pressure Gauge	15 bar bourdon tube pressure gauge Package quantity : 10 pcs.	

System Components

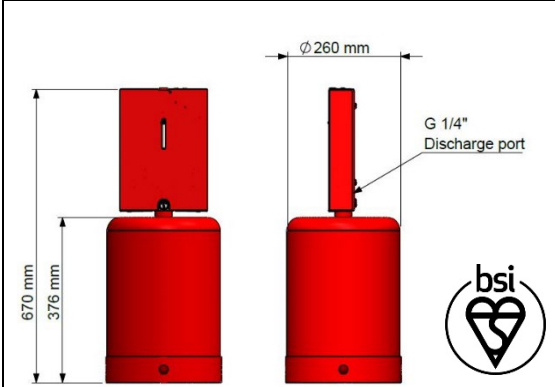
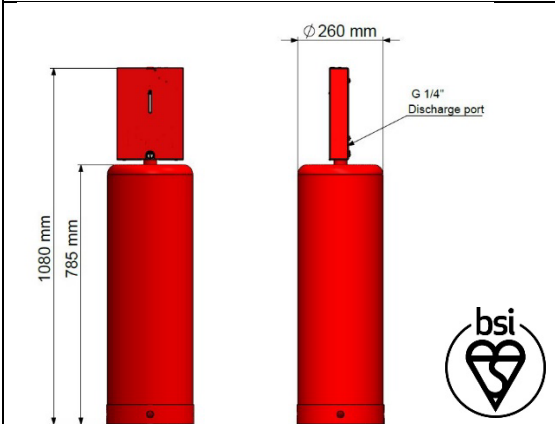
Part Code	Part Name	Explanation / Details	Image / Picture
AC	Aluminum Collet	Aluminum Collet Package quantity : 100 pcs.	
SH	S Hook	S Hook Package quantity : 10 pcs.	

HOODSAFER KITCHEN FIRE SUPPRESSION SYSTEM FEATURES :

- Worlds' first EN:17446-2021 certified system. [Click for online certificate validation](#)
- No cartridge or pressurized equipment needed for activation.
- Fast and precise mechanical detection.
- Micro switch included.
- Gas shut-off valve applicable (mechanical or electrical)
- Multi cylinder application up to 5 cylinders.
- PATENTED SYSTEM
- Easy to install
- Easy to maintain and service.
- World's simplest hydraulic calculation is developed by Hoodsafer.

Easy to calculate and easy to design the system for a hood.

- 8 flowpoint and 16 flowpoint options
- 2 types of discharge nozzles.
- Low cylinder pressure (15 bar)
- 3/8" discharge piping
- 18 mm piping for manual pull station
- Cylinders can be transported pressurized.

	<p style="text-align: center;">HS8 SET</p> <ul style="list-style-type: none"> • Non pressurized and 10 LT Wet chemical filled cylinder • Automatic mechanical actuation mechanism • Manual pull station • 6 pcs. H1 nozzles • 1 pcs. H2 nozzle • 5 pcs. Corner pulleys • 1 pcs. 182 C thermobulb
	<p style="text-align: center;">HS16 SET</p> <ul style="list-style-type: none"> • Non pressurized and 20 LT Wet chemical filled cylinder • Automatic mechanical actuation mechanism • Manual pull station • 12 pcs. H1 nozzles • 2 pcs. H2 nozzle • 5 pcs. Corner pulleys • 3 pcs. 182 C thermobulb



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Shut off Valve Data Sheet.

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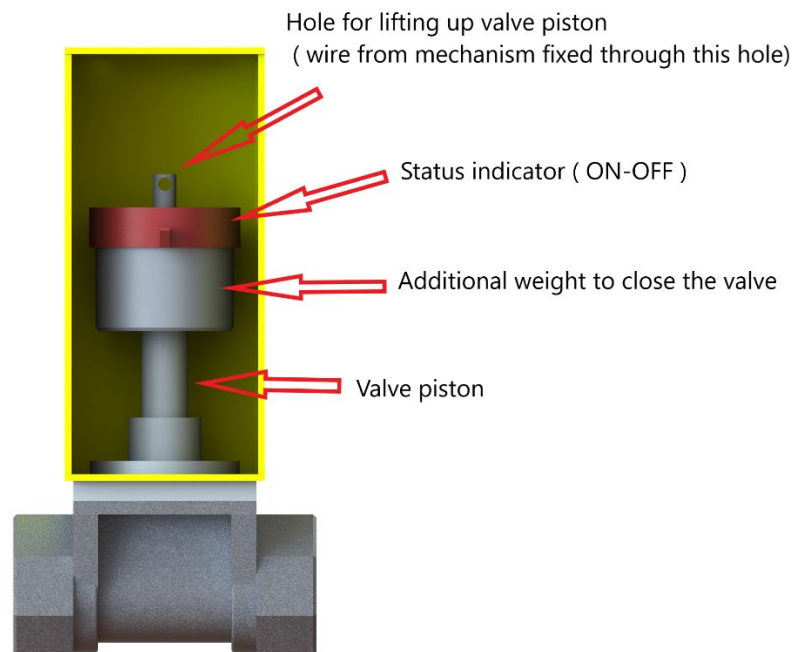
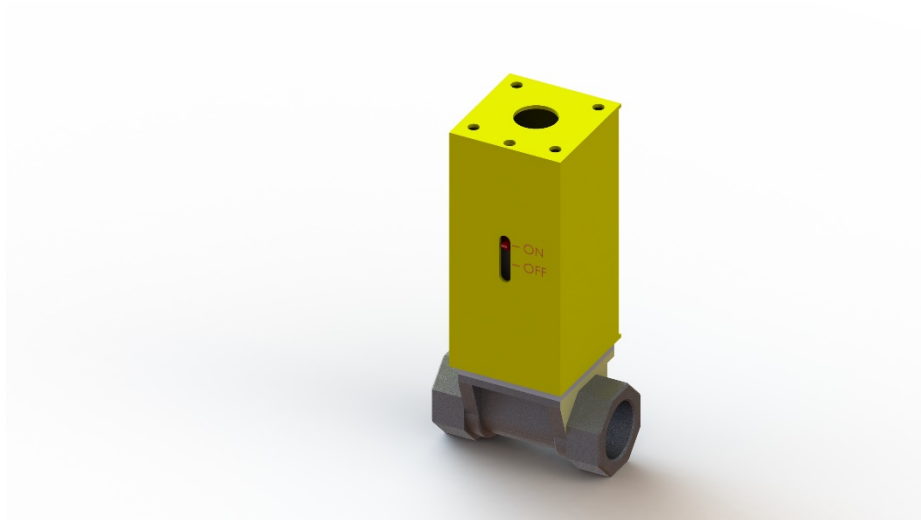
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HOODSAFER GAS SHUT-OFF VALVE

- Piping diameter : 1" BSPP (Different pipe diameter options are available)
- Normally closed
- Fully mechanical. Works with lever movement on Hoodsafer activation mechanism.
- Cost effective.
- Easy to install
- Easy to maintain and servicing.
- Brass body.





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Flame Killer Data Sheet.

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1. PRODUCT AND COMPANY IDENTIFICATION

1.1. Product Information

Product Name : Flame Killer

1.2. Use / Application Area

Industrial use : Suppression of hood fires

2. COMPOSITION / INFORMATION ON INGREDIENTS

2.1. Contained Materials

Component Name	CAS# / Codes	Concentration	R Phrases	EU Classification
Potassium Carbonate	548-08-7 EC#2095293	>40%	R36/37/38	Xn
Water	7732-18-5 EC#2317912	<60%	None	None

3. HAZARDS IDENTIFICATION

Hazard Classification and Labeling

December 11, 2013 28 848 possible, place and date. No. Classification of Hazardous Substances and Preparations, and the EU Directive on Packaging and Labelling Regulations EC 1272/2008 (CLP) within the framework of classified and labeled as follows.

C l t Wear / irritation evil - Category 2: H315

C d G essence Damage / G essence of evil irritation - Category 2: H319

Specific Target Organ Toxicity (single exposure) - Category 3: H335



Caution

- H315** : Cause skin irritation.
- H319** : Causes serious eye irritation.
- H335** : May cause respiratory tract irritation.
- P264** : Wash your hands thoroughly with water after handling.
- P280** : Wear protective gloves / protective clothing / eye protection / face protection.
- P302 + P352**: UPON CONTACT WITH SKIN IS: Wash with plenty of soap and water.
- P304 + P340**: Inhalation: Remove injured person to fresh air and easily Keep in a position comfortable for breathing.
- P305 + P351 + P338** : EYE CONTACT: Rinse carefully with water a few minutes. If the handle attached, and do, remove contact lenses. Continue rinsing.
- P501** : Content / container "Regulation on General Principles of Waste Management" Dispose of in accordance with.
- 13 December 2014 and 29204 resident individual. No. Dangerous Substances and Preparations**
- Classification, Packaging and Labelling Regulations and EU Directives 67/548 / EEC (DSD) or 1999/45 / EC (DPD) in the frame and classified as follows:**
- labeled.**
- Irritant: R36/37/38**

4. FIRST AID MEASURES

Eyes

Immediately flood the eye with plenty of water or warm water for at least 15 minutes, holding the eye open. Obtain medical attention if soreness persists.

Skin

Wash effected area with soap and water. Obtain medical attention if irritation persists.

Ingestion

Dilute by drinking large quantities of water and obtain medical attention.

Inhalation

Move victim to fresh air. Obtain medical attention immediately for any breathing difficulty.

Advice to Physicians

Treat symptomatically.

5. FIRE FIGHTING MEASURES

Extinguishing media

This preparation used as an extinguishing agent and therefore is not a problem when trying to control a blaze. Use extinguishing agent appropriate to other materials involved. Keep all pressurized containers and jugs and surroundings cool with water spray as they may rupture or burst in the heat of a fire.

Unusual Fire and Explosion Hazards

Pressurized containers may explode in heat of fire.

Protective Equipment for Fire Fighting

Wear full protective clothing and self-contained breathing apparatus as appropriate for specific fire conditions.

6. ACCIDENTAL RELEASE MEASURES

Contain and absorb using appropriate inert material. Transfer into suitable containers for disposal. Prevent skin and eye contact. Wear appropriate protective equipment. Prevent the material from entering drains and watercourses.

7. HANDLING AND STORAGE

Pressurized containers and jugs should be properly stored and secured to prevent falling or being knocked over. Do not drag ,slide or roll containers. Do not drop containers or permit them to strike against each other. Never apply flame or localized heat to any part of the container. Store containers away from high heat sources . Storage area should be cool , dry , well ventilated , under cover from direct sunlight.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Standards

Occupational exposure limits are listed below , if they exist.

Potassium Carbonate

None established.

Engineering Control Measures

Use with adequate ventilation. There should be local procedures for the selection , training , inspection and maintenance of this equipment. When used in large volumes , use local exhaust ventilation.

Respiratory Protection

Not normally required.

Hand Protection

Use rubber gloves when handling the preparation.

Eye Protection

Chemical goggles or safety glasses with side protection.

Body Protection

Normal work wear

9. PHYSICAL AND AND CHEMICAL PROPERTIES

Physical State	Liquid
Color	Clear
Odor	Odorless
pH	>11
Specific Gravity	~1.4
Boiling Range / Point	108.9 C
Flash Point	Not flammable
Solubility in water	Soluble
Vapor Density	Not applicable
Vapor Pressure	Not applicable
Evaporation Rate	Not applicable

10. STABILITY AND REACTIVITY

Stability

Stable under normal conditions.

Conditions to Avoid

Heat – High temperature – Exposure to direct sunlight.

Materials to Avoid

Acids – ammonium compounds – metals

Hazardous Polymerization

Will not occur

Hazardous Decomposition Products

Oxides of carbon

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Low order of acute toxicity

Potassium Carbonate : Oral LD50(rat) : 1870 mg/kg

Chronic Toxicity / Carcinogenicity

This product is not expected to cause long term adverse health effects.

Genotoxicity

This product is not expected to cause any mutagenic effects.

Reproductive / Developmental Toxicity

This product is not expected to cause adverse reproductive effects.

12. ECOLOGICAL INFORMATION

Mobility

No relevant studies identified

Persistence / Degradability

No relevant studies identified

Bio-accumulation

No relevant studies identified

Ecotoxicity

No relevant studies identified

13. DISPOSAL

Dispose of container in accordance with all applicable local and national regulations. Do not cut , puncture or weld on or near the container. No harm to the environment is expected from this preparation.

14. TRANSPORT INFORMATION

This product is not classified as hazardous in none of applicable regulations.

15. REGULATORY INFORMATION

This MSDS is prepared according to “ T.C. Ministry of Environment and Forestry , R.G. About Safety Data Sheets Relating to Hazardous Substances and Mixtures”

Regulation No: 29204. Rev Date : 13-12-2014



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BSI Kitemark Certificate.

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Kitemark™ Certificate

This is to certify that:

HOODSAFER YANGIN SÖNDÜRME SİSTEMLERİ SAN
VE TİC. A.Ş.
GAZİLER MAH
KUCUK ESNAF SANAYİ SITESİ, 251 SOKAK
NO:5 KEPEZ
ANTALYA
07020
Turkey

Holds Certificate Number:

KM 767382

In respect of:

BS EN 17446:2021
Fire Extinguishing Systems in Commercial kitchens

This issues the right and licence to use the Kitemark in accordance with the Kitemark Terms and Conditions governing the use of the Kitemark, as may be updated from time to time by BSI Assurance UK Ltd (the "Conditions"). All defined terms in this Certificate shall have the same meaning as in the Conditions.

The use of the Kitemark is authorized in respect of the Product(s) detailed on this Certificate provided at or from the above address.



For and on behalf of BSI:

Frank Lee, Product Certification Technical and Compliance Director

First Issued: 2022-07-27

Effective Date: 2022-07-27

Latest Issue: 2022-07-27

Expiry Date: 2025-07-26

Page: 1 of 2

...making excellence a habit.™

Kitemark™ Certificate

No. KM 767382

Description	Model No	Additional Info	Branded As
Mechanical Kitchen Fire Suppression System tested to BS EN 17446:2021. 8 Flow Capacity, 10 Litre Flame Killer Wet Chemical, Stored Pressure, Temperature Activated (Thermo Bulb) or Manual Activated.	HS-8	Suitable for use on Deep Fat Fryers, Griddles, Range Tops & Wok's	HS Series
Mechanical Kitchen Fire Suppression System tested to BS EN 17446:2021. 16 Flow Capacity, 20 Litre Flame Killer Wet Chemical, Stored Pressure, Temperature Activated (Thermo Bulb) or Manual Activated.	HS-16	Suitable for use on Deep Fat Fryers, Griddles, Range Tops & Wok's	HS Series
Pneumatic Kitchen Fire Suppression System tested to BS EN 17446:2021. 8 Flow Capacity, 10 Litre Flame Killer Wet Chemical, Stored Pressure, Temperature Activated (Thermoplastic Tubing) or Manual Activated.	HSP-8	Suitable for use on Deep Fat Fryers, Griddles, Range Tops & Wok's	HSP Series
Pneumatic Kitchen Fire Suppression System tested to BS EN 17446:2021. 16 Flow Capacity, 20 Litre Flame Killer Wet Chemical, Stored Pressure, Temperature Activated (Thermoplastic Tubing) or Manual Activated.	HSP-16	Suitable for use on Deep Fat Fryers, Griddles, Range Tops & Wok's	HSP Series

First Issued: 2022-07-27

Latest Issue: 2022-07-27

Effective Date: 2022-07-27

Expiry Date: 2025-07-26

Page: 2 of 2

This certificate has been issued by and remains the property of BSI Assurance UK Ltd, Kitemark Court, Davy Avenue, Knowlhill, Milton Keynes MK5 8PP, United Kingdom and should be returned immediately upon request.
To check its validity telephone +44 (0) 345 080 9000. An electronic certificate can be authenticated [online](#).

BSI Assurance UK Limited, registered in England under number 7805321 at 389 Chiswick High Road, London W4 4AL, UK.
A member of BSI Group of Companies.



Worldwide reliability with the first standard in its field

HOODSAFER Hood Extinguishing Systems has been awarded the first Kitemark certificate against the new kitchen suppression system standard BS EN 17446:2021.

"BSI made a difference with its solution-oriented and well-intentioned approach throughout the certification process."

Bora Yurttaş,
General Manager, HOODSAFER

The business in brief

HOODSAFER is a fire extinguishing system manufacturer for kitchens, vehicles, and other special requirements. HOODSAFER aim to design and manufacture the best, safest and simplest fire extinguishing solutions to be in the best suppliers for fire extinguishing systems in the world with it's experienced team. There are many companies manufacture or supply kitchen fire suppression systems in the world. Unfortunately, just a little number of the companies have valid approvals. BSI is the first and only certification body who capable to assess and certify according to BS EN 17446:2021 standard.

BSI: the business benefits

BSI...

- Validates internal product tests and reduces risks
- Increases customer confidence
- Supports the company to build trust in its customers
- Supports the international growth of a company
- Helps them reach new markets and new customers easily

Company background

HOODSAFER was founded by two technical experts that has been experienced in designing, manufacturing, R&D and marketing in different sectors, including the fire protection and prevention sector, for many years.

The knowledge and experience blended with the experience of different sectors has revealed the world's first and only "hydraulic activated hood extinguishing system". Patent application for this new technique was made in April, 2020.

Since the first week of its establishment, it has received great appreciation and attention from its colleagues in the sector with its innovative system.

HOODSAFER aims to be the main supplier of the world's safest and simplest systems with its patented technique.

Why BSI Kitemark™:

BSI Kitemark certification confirms that a product or service's claim has been independently and repeatedly tested by experts, means that there is confidence and trust in the company's Kitemark-certified products and services.

Bora Yurttaş, General Manager of HOODSAFER mentioned that "Protection of commercial kitchens against fire is not a well known issue and that means there is very limited information about challenges and risks. In this case, a trustworthy approval is required to be sure if the system is capable to protect the kitchen properly. There are many companies in the world that manufacture or supply kitchen fire extinguishing systems. Unfortunately, very few companies have valid approvals. Most of them have fake approvals or only confirmations without valid testing."

He adds that, customers and governments trust on BSI, so with BSI Kitemark, now HOODSAFER make dealer agreements and find new customers much more easier than ever.

BSI Solution

Fire safety protocols in commercial kitchens are extremely important to prevent hazardous accidents, especially as these areas are operating with combustible materials, grease-laden vapors and large number of electrical appliances.

BS EN 17446 establishes the minimum requirements applicable to the design, installation, functioning, testing and maintenance of fixed automatic fire extinguishing systems for kitchen protection that covers the cooking appliances, the hood, the plenum, and the air extract ducts.

Until 2021, there was no standard for fire protection of kitchens in Europe. As a result of the European Committee for Standardization's joint work with BSI and other partners, the BS EN 17446:2021 standard entered into force. This standard became valid and mandatory throughout Europe after February 2022.

Based on these requirements, HOODSAFER decided to work with BSI as a result of their research, as BSI had the right standard and test scheme in its portfolio. Especially the fact that customers can easily access this certificate from BSI's website has given the company much more confidence.

BSI is the first and only certification body that can evaluate and certify according to the EN 17446:2021 standard.

Contact us to find out how BSI can help your business make excellence a habit.

To speak to an advisor call:

+90 216 445 90 38

visit our website: bsigroup.com/tr-TR/

or email us at:

bsi.eurasia@bsigroup.com



المختبرات المعتمدة لدى شئون السلامة

Testing Laboratories Approved by Saudi Civil Defense

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Factory Mutual	UL	Corporate Headquarters 333 pinkster Road ,IL60062-2096Northbrook U.S.A	Telephone: 847-272-8800 Fax: 847-272-8129 http://www.ul.com northbrook@ul.com
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The Loss Prevention Certification Board, BRE Certification Ltd	LPCB	Loss Prevention Council Board, BRE Certification Ltd , Garston, Watford, Herefordshire WD 25 9XX United Kingdom	LGAI TTel: +44(0)1923664100 +44(0)1923664994 Fax: www.brecertification.co.uk Email : inquiries @ brecertification .co.uk
British Standards Institution	BSI	Cheswick High Road W4 4ALLondon United Kingdom	Tel: +44(0)2089967070 Fax: +44(0)2089966400 http://www.bsi.org.uk Email: info @bsi.org.uk
VdS Loss Prevention	VDS	VDS schadenverhütung Amsterdamer Str.174 D- 50735 Köln	Tel: +49(0)22177660 Fax: +49(0)2217766341 fireprotection_labs@vds.de http://www.vds.de
Underwriters Laboratories of Canada	ULC	7Crouse Road , OntarioToronto MIR3A9	Tel:(416)757-3611 Fax(416)757-9540 http://www.ulc.ca
Institute for Technical Fire Protection & Safety Research	IBS	Austria	Tel: +43(0)7327617-850 Tel: +43(0)7327617-89 http://www.ibs-austria.at
ProductivitySingapore And Standard Board	PSB	2 Bukit Merah BuildingPSB 159835Central Singapore	Tel:2786666 Fax:2786667 http://www.psb.com
TastingKorea Laboratories	KTL	Korea	Tel:02-9601114 Fax:029601285 http://www.ktl.re.kr
Intertek Tasting Services "Warnock Heresy"	ITS	Antioch industrial Park,2000 Wymore way,Antioch,CA94509	Tel:925-756-6606 Fax:925-756-6094 http://www.etlsemko.com



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Saber Certificate.

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فاكس تحويلة: 111-: 0581444606

المعرض | : جدة - شارع البلدية - مركز الفانوس | المعرض 2: مكة - شارع الحج

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شهادة مطابقة للمنتجات الخاضعة للوائح




Certificate of conformity for regulated products



We (.....SGS Española de Control, SA.....) office number (.....00101.....) are bearing full responsibility for the product described below is conforms to the conformity assessment procedure Conduct the relevant technical regulations and standards which mentioned during this certificate.

Certificate Number	19117-001-22-804422	Issue Date	23/12/2022	Expire Date	23/12/2023
Certificate Type	Certificate of conformity for regulated products	Commercial Registration No	4030267410		
Establishment Address	جدة 5065 2 8073-22335				
Product and Manufacturer Data					
Model Name	HS8 HS16	Trade Mark	Hoodsafer		
Product Name	kitchen hood fire suppression system				



Product Description	KITCHEN HOOD FIRE SUREPSION SYSTEM BSI APPROVED	
Country of origin	Turkey	
HS Code	842410000001	
Technical Regulation	Technical Regulation for Fire Fighting Equipments and Materials	
Manufacturer name	HOODSAFER	
Product test data		
Report number	3639910	
Report Date	19/04/2022	
Decision of conformity assessment	Product Approved	

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22/01/2023 02:19

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Saudi Standards



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EU-Type Examination Certificate.

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EU - type Examination Certificate

This is to certify that the product listed below conforms to the requirements of the

Pressure Equipment Directive 2014/68/EU

Annex III Module B (production)

Certificate Number HPIVS-iP1020-079-I-01-00
Date of Issue 24-Feb-2022 **Date of Expiry** 23-Feb-2032
Manufacturer HOODSAFER YANGIN SÖNDÜRME SİSTEMLERİ SAN.VE TİC.A.Ş
Gaziler Mah.251.Sok.No:1 J Kepez-Antalya / Turkey

Description of Pressure Equipment Powder, gas, foam, wet chemical cylinders for fire suppression systems - capacity 10 lt, 15 lt and 20 lt
Drawing No 10 Lt, 15 LT, 20 LT dated 04 Feb 2022
Representative Specimen Serial No 10lt: SN 01 to 04, 15lt: SN 01 to 04, 20lt: SN 01 to 04
Design Pressure (bar) 15 bar
Design Temperature (°C) -20 to 60°C
Standards Used EN 3-7:2004+A1:2007, EN 3-8:2006, EN 1866-2:2014
Report Reference HPIVS-iP1020-079-DR01; iP1020-079-1

This Certificate is valid in any European Economic Area Member State.

This Certificate has been issued by HPI Verification Services (Ireland) Ltd. which is a body notified to the European Commission according to the provisions of the Pressure Equipment Directive (Notified Body number 2810).

This Certificate is issued following the assessment of a representative sample of the Pressure Equipment detailed above in accordance with the provisions of the above regulations. The equipment must be subject to an appropriate conformity assessment module during manufacture prior to the CE Mark being affixed.

Check this certificate is genuine



Managing Director

Technical Manager



EU Notified Body No. 2810
Company registered in Ireland #577786

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Tel +353 (0)1 8017008

Email enquiries@hpivs.ie

www.hpivs.ie

HPI Verification Services (Ireland) Ltd.
Clonross

Dunshaughlin, Co.Meath
A85 XN59, Ireland



شركة أزيدك
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ISO 9001 Certificate.

الإدارة: جدة - حي الصفا - شارع الأمير ماجد - الصفا بلازا - مبنى A الدور الثالث مكتب 340 - س.ت: 403026741 - هاتف -6342166- 0126880407 -

فاكس تحويلة: 111-: 0581444606

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BUREAU
VERITAS

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HOODSAFER YANGIN SÖNDÜRME SİSTEMLERİ SANAYİ VE TİCARET A.Ş.

GAZİLER MAH. 251 SOK. NO: 1J KEPEZ, ANTALYA, TURKEY

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below

ISO 9001:2015

Scope of certification

**DESIGN, MANUFACTURE AND SALES OF FIRE DETECTION AND FIRE
EXTINGUISHING SYSTEMS**

Original Cycle Start Date: **13-10-2021**
Expiry Date of Previous Cycle: **NA**
Certification / Recertification Audit date: **21-08-2021**
Certification / Recertification cycle start date: **13-10-2021**
Subject to the continued satisfactory operation of the
organization's Management System, this certificate expires on: **12-10-2024**

Certificate No.: **TR010763** Version: **1** Issue Date: **13-10-2021**

Signed on behalf of BVCH SAS UK Branch

Certification Body Address: 5th Floor, 66 Prescot Street, London, E1 8HG, United Kingdom

Local Office: Esas Maltepe Ofispark Altayçeşme Mah. Çamlı Sok. No: 21 Kat: 8 Maltepe, İstanbul, 34843 Turkey

Further clarifications regarding the scope and validity of this certificate, and the applicability of the management system requirements, please call: +90 216 518 40 50



0008





شركة أزيدك
لأجهزة السلامة

Installation Manual.

الإدارة: جدة - حي الصفا - شارع الأمير ماجد - الصفا بلازا - مبنى A الدور الثالث مكتب 340 - س.ت: 403026741 - هاتف -6342166- 0126880407 -

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Hoodsafer
Saves your hood

Fixed fire suppression system for kitchen hood and catering equipment

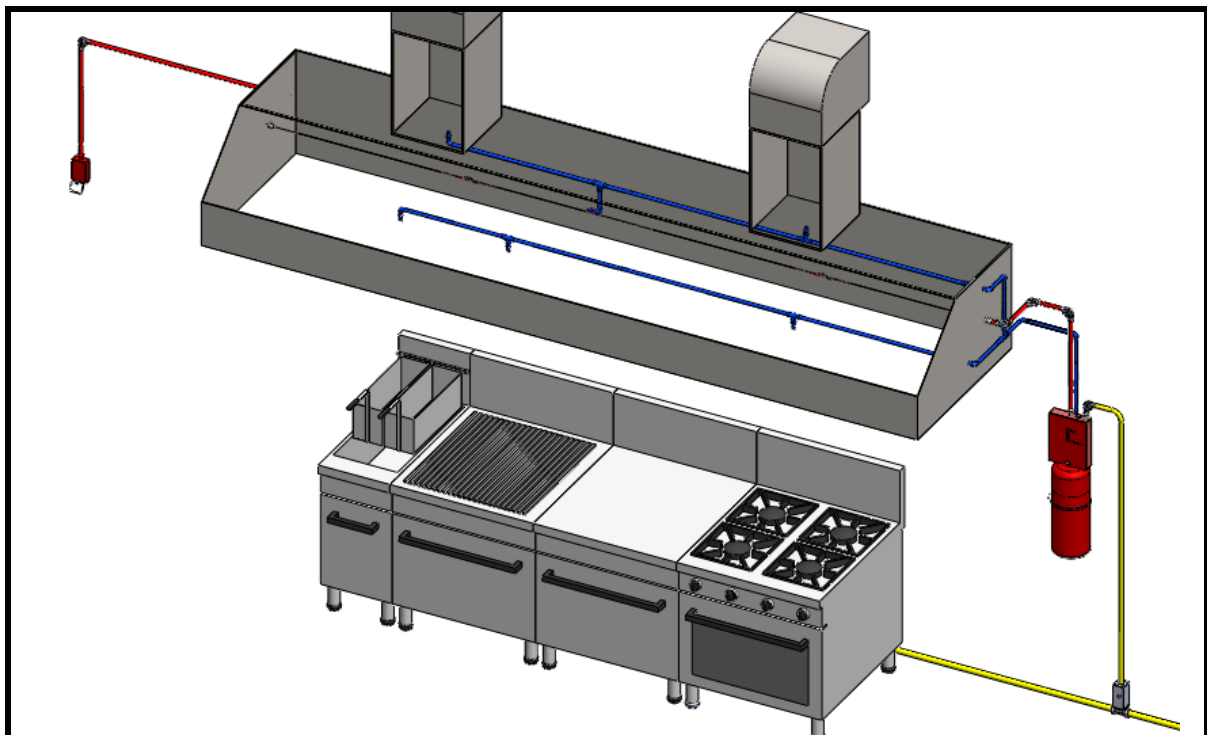


Hoodsafer
Saves your hood

PRE-ENGINEERED FIXED FIRE SUPPRESSION SYSTEM

for KITCHEN HOOD & CATERING EQUIPMENT

TECHNICAL MANUAL



MODELS ;

HS-4

HS-8

HS-16



SUMMARY

This technical manual is prepared for Hoodsafer **HS-4 , HS-8 & HS-16** models. The manual explain how to design , calculate , install , maintain and service the Hoodsafer pre-engineered fixed fire suppression system for hood & catering equipment.

READ , UNDERSTAND and COMPLY all the rules , explanations and precautions in this manual.

Hoodsafer is a “pre-engineered” fixed fire suppression system to protect commercial kitchen hoods and catering equipment against fire.

The definition “pre-engineered system ” means ;

- The system is tailored specially and individually for a kitchen hood.
- The system shall be designed for hood’s and catering equipment’s features.
- System suppression capacity , detection line , discharge piping line , nozzle placement and amount etc. shall be calculated according to hood and catering equipment features.

Only authorized Hoodsafer staff or authorized Hoodsafer dealer staff shall perform the tasks in this manual.

Hoodsafer will not have any responsibility in case of unauthorized interventions.

SAFETY PRECUATIONS

- Protective glasses are to be put on during use of pressurized cylinders. It may cause losses of lives and properties significantly.
- In re-filling of cylinders, filled-cylinders shall never be filled without filling apparatus or splash protection plate.
- Where such equipment is equipped, filled cylinders should be tightened in a manner to withstand pressure which may occurred in accidental opening of the valve.
- Do not use oxygen welding to remove piping installation. Using oxygen welding is too dangerous. Availability of small amount of oil may cause explosion so that this may cause loss of life and property and physical injuries.
- The system uses high pressure. Safety goggles are to be placed. Loose the mechanism slowly and carefully.
- Do not dispose pressurized cylinders. The cylinders are to be discharged fully before disposal. The filled gas cylinders may cause danger when they will not be carried as needed.
- Do not heat the cylinders over 60°C. It may cause loss of live and/ or property and physical injuries.
- Overheated pressurized cylinders may explode so that such situation may cause loss of live and/ or property and physical injuries.



PRESSURIZED CYLINDERS

- Pressurized cylinders used in the system; therefore, the personnel in charge of the fire extinguishing systems is to be notified of the dangers for failure in handling, installation or maintenance of the equipment duly.
- Fire Extinguishing system service personnel shall have been trained fully on handling, installation and maintenance of the equipment duly, and comply with the operating instructions in this manual strictly.

Please Note That..!!

Pressurized (filled) cylinders are extremely dangerous and may be discharged violently when not handles properly. Such circumstance may cause loss of life and property and physical injuries.

Please Note That..!!

READ, UNDERSTAND and ALWAYS COMPLY with operating and maintenance manuals, user manuals, service manuals and similar documentation delivered with the systems.

Moving – delivery of Cylinders:

Cylinders are to be shipped in upright position and required measures in compact manner. The cylinders should not rolled, dragged, and skipped. It is not permitted to skip the cylinders from the luggage covers of the vehicles. Proper trolley, stacking equipment and rolling platform or other similar equipment are to be used.

Careless Handling:

Cylinders are not to be fallen or they are not allowed to hit each other or other surfaces hardly.

Storing:

Cylinders are to be stored in upright position at a place in which there will be stand safe without tripping



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1	System Description
1.1	Fire Class Definition
1.2	Operating Temperature Limits
1.3	Standards and Approvals
1.4	Manufacturer Warranty Conditions
1.5	Operation Principle
1.6	Fundamental Configuration
1.7	Activation Diagram
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4.6	Activation mechanism periodical maintenance
4.7	Nozzle Periodical Maintenance
4.8	System Cylinder Periodical Maintenance
4.9	Cleaning Instructions for System
4.10	Discharge Pipes Periodical Maintenance
4.11	Labels and markings

CHAPTER 1 :

Definitions , system information and descriptions

1. System Description

Where kitchen hoods used in commercial kitchens would be used for long periods without cleaning long time, it is very difficult to extinguish the fires caused by ignition of the oils accumulated inside the kitchen hood . Also, it is very likely occurrence of fire in the cooking equipment in the kitchen. Kitchen hood and cooking equipment extinguishing system is the easiest and most effective solution in extinguishing of these fires.

1.1. Fire Class Definition

Vegetable and animal origin liquid oil containing fires are defined as “K” Class fire in the United States of America and F Class Fire (EN Form) in the European Countries. Such product is designed and tested for K and F class fires. In European norms, the applicable standard details are given under EN3-7/A2.

1.2. Operating Temperature Limits

System operating temperature is between +5°C and +49°C. In higher ambient temperatures, ventilation or ambient cooling are required.

1.3. Standards and Approvals

- System Cylinders according to 201/68/EU Pressurized equipment directive (No: HPiVS/P1020-012-I-04 Annex: III Module C2) has CE Certificate.
- Manufacturer has ISO-9001/2015 (xxx – xxx) quality certificate.
- Manufacturing firm has LPS 1223 Certificate (Certificate xxxx).
- System design meets the requirements of NFPA 17A and NFPA 96.

1.4. Manufacturer Warranty Conditions

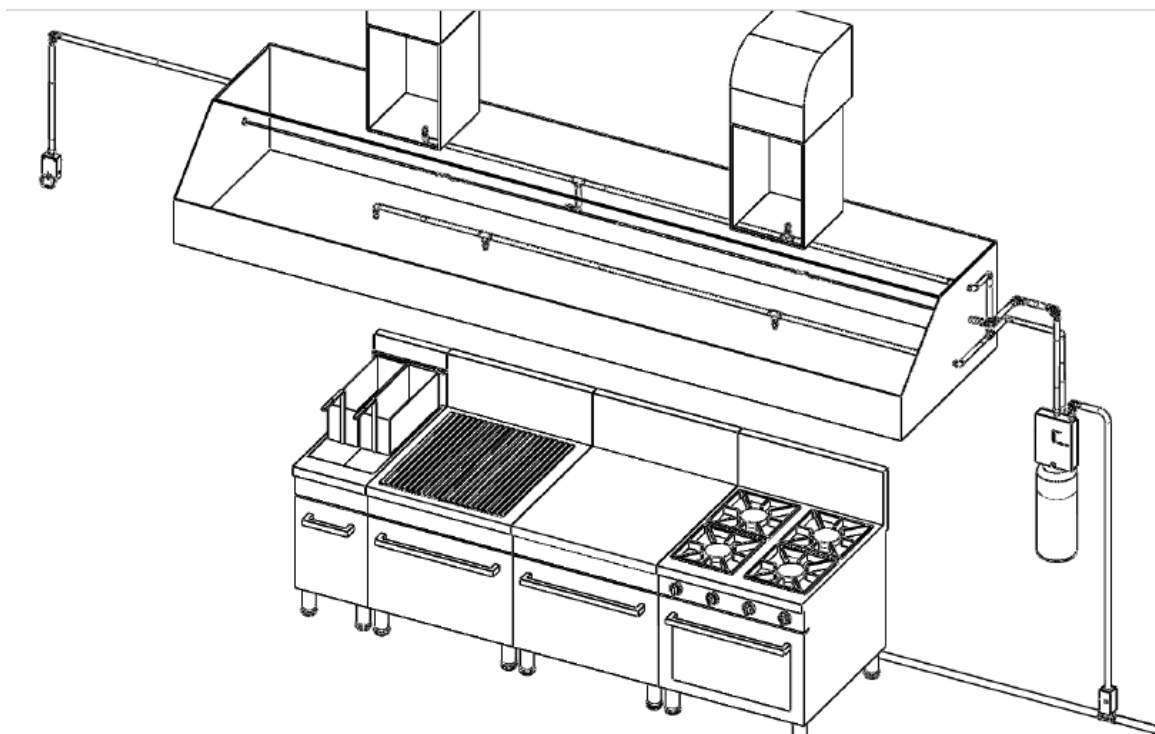
The product is under 2-year warranty against production faults unconditionally for components. Warranty period shall start as of the date of sales invoice, and end two years thereafter. The defective part/ product shall be replaced with a new one in the event of production defects within 30 days.



1.5 Operation Principle

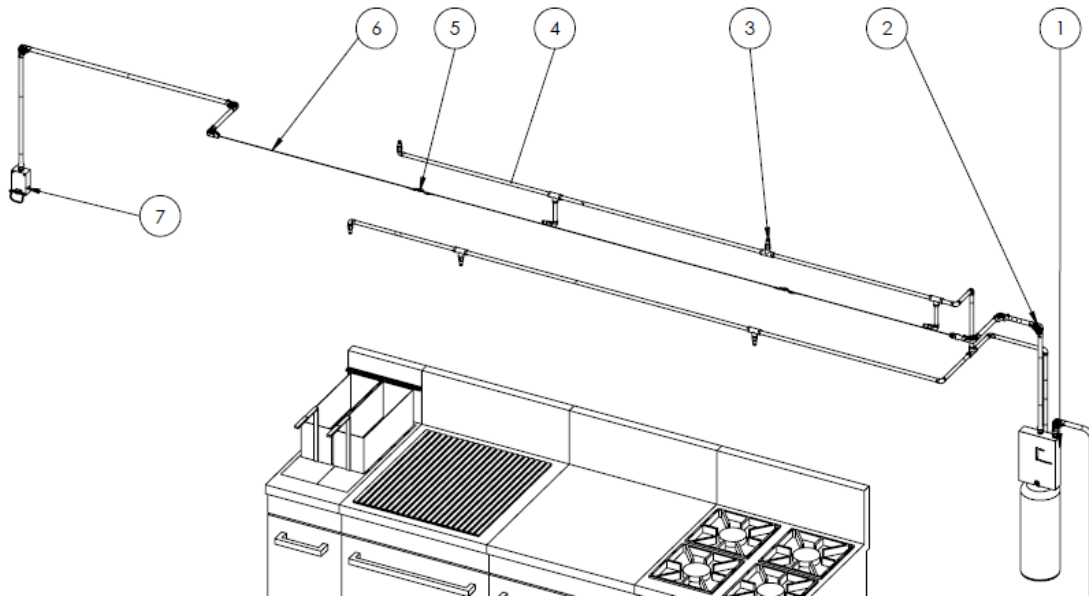
The System works in two ways as automatic or user activated. In automatic activation, the temperature sensitive glass detectors (thermo bulbs) placed specifically in the kitchen hood system are burst and the system is activated. When manual activation needed, the activation is performed by pulling the pull pin on the remote pull station. After activation of the system, wet chemical extinguishing liquid is sprayed via nozzles over the cooking equipment, through the filter of the kitchen hood, and the chimneys .

1.6 Fundamental Configuration



1.8 System Models by suppression capacities

HS-4	4 Flow capacity suppression system
HS-8	8 Flow capacity suppression system
HS-16	16 Flow capacity suppression system



HS series suppression system introduction

Item No	Component
1	System cylinder and activation mechanism
2	Corner pulley
3	Nozzle
4	Discharge line
5	Thermobulb
6	Detection line
7	Remote pull station

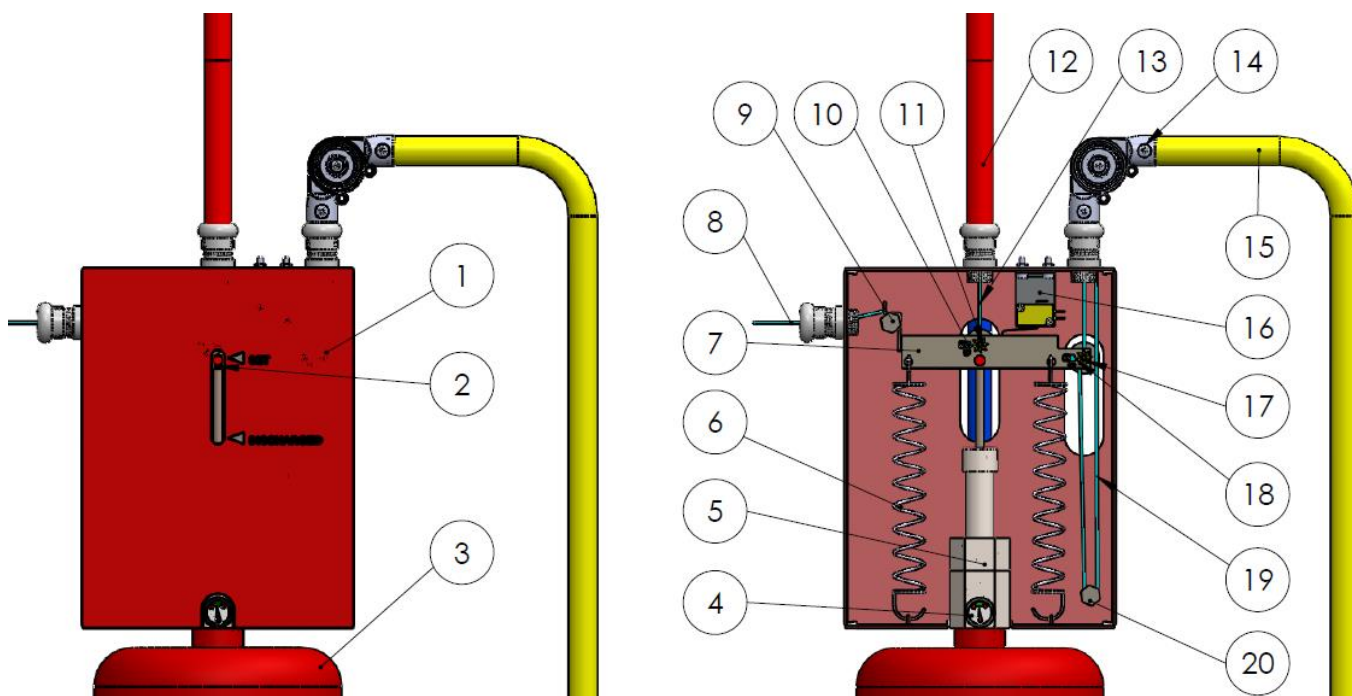


1.9 System Main Components

- Activation mechanism
- Pressurized cylinder
- Remote pull station
- Nozzle
- Heat detectors (thermobulbs)
- Corner pulley
- Discharge line
- Activation line

1.10 Activation mechanism

The activation mechanism is a valve mechanism equipped with a hydraulic cylinder and lever assembly .



Hoodsafer system activation mechanism

Item No	Description	Item No	Description
1	Mechanism box lid	11	Tension gear for detection line
2	Activation indicator	12	Discharge line
3	Cylinder	13	Detection line
4	Pressure gauge	14	Corner pulley
5	Valve assembly	15	Gas shut-off valve line
6	Lever spring	16	Microswitch
7	Lever	17	Tension gear for gas shut-off valve line
8	Multi-cylinder line	18	Tension gear ratchet for gas shut-off line
9	Multi cylinder lever	19	Gas shut off valve wire
10	Tension gear ratchet	20	Wire holder for gas shut-off line






1.11 Pressurized cylinders

Cylinders have 3 different volume capacities

- HS-4 - 4 Flow 6 Liter P/N:HP2100
- **HS-8 - 8 Flow 9,5 Liter P/N:HP2200**
- **HS-16 - 16 Flow 20 Liter P/N:HP2300**

Cylinder package include 1 hang, 1 ground hang, 1 meter strip clamp and 1 clamp fixture .

		
P/N:HP2100 Type: HP4 Capacity: 6 Liter Diameter: 150 mm Length : 470 mm Syphon : 1/2" Syphon Length : 45,5 cm	P/N:HP2200 Type: HP8 Capacity: 9,5 Liter Diameter: 190 mm Length : 520 mm Syphon : 1/2" Syphon length : 46,5 cm	P/N:HP2300 Type: HP16 Capacity: 20 Liter Diameter: 242 mm Length : 653 mm Syphon : 1/2" Syphon Length : 63,5 cm
HP4 Cylinder	HP8 Cylinder	HP16 Cylinder

Cylinders are pressurized with nitrogen 15 bar in standard room temperature (21°C).Cylinder pressure will increase or decrease according to ambient temperature. Pressure change acc. To temp;

- 20 C° 11 bar
- 21 C° 15 Bar
- 60 C° 18,5 bar

Operational pressure is shown as "green area" in manometer. The green area beginning shows 11 bar, end shows 18,5 bar. System is fully functional if manometer indicator is on "green area".



P/N:
Pressure gauge

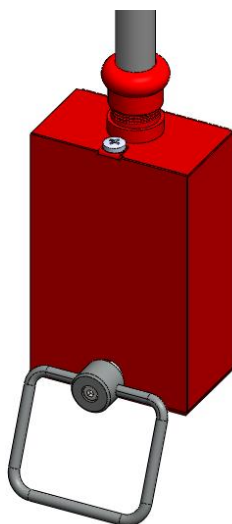


Cylinder hang and fixtures

System includes 2 types of hangs. **Type-1** wall hang. **Type-2** Ground fixture.

1.12 Remote pull station

Remote pull station is used for activation the system manually.
Easily pull the pin and system will be activated.



Remote pull station

1.13 Nozzles

There are 3 types of nozzles used in the System.

H1 type Nozzle (P/N: P4000)




H1 nozzles are 1 flow nozzles with 40-60 degrees full cone spray pattern.
Marked with 1 line on diameter to define nozzle type.
Used to protect chimneys , hood filters , plate stoves

H2 type Nozzle (P/N: P5000)

H2 nozzles are 2 flow nozzles with 20-35 degrees full cone spray pattern.
Marked with 2 lines on diameter to define nozzle type.
Used to protect fryers , bratt pans , coal , wood and gas barbecues

H3 type Nozzle (P/N: P6000)

H3 nozzles are 1 flow nozzles with 70-90 degrees full cone spray pattern.
Marked with 3 lines on diameter to define nozzle type.
Used to protect gas stoves and ranges

		
H1 type nozzle	H2 type nozzle	H3 type nozzle

1.14 Heat detectors

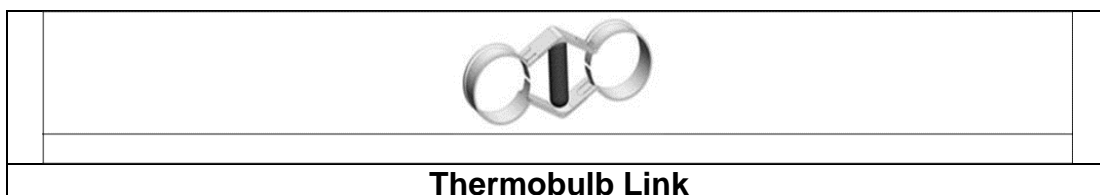
JOB standard response thermobulb links are used for fire detection. JOB thermobulb links are UL listed.

3 types of thermobulb links are used for fire detection. The thermobulb links may be used individually according to needs for different cooking equipment in a hood.

Low temp detection : 141 C thermobulb (HP2751)

Mid temp detection : 182 C thermobulb (HP2851)

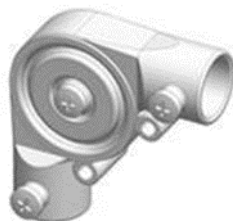
High temp detection : 260 C thermobulb (HP2951)



Temperature	Color Code	Part Code	Definition	Cooking equipment	Protection area rule
141 C	Blue	HP2751	Low temp	All equipments without open flame	Shall be positioned the closest position to chimney entrances or spacing shall be 130 cm.
182 C	Purple	HP2851	Mid. Temp	Fryers , range tops , skillets ,woks.	
260 C	Black	HP2951	High temp	Barbecues and grills with open flame	

1.15 Corner pulleys

Corner pulleys are used to bend the detection line safely. **Maximum 25 pieces corner pulleys can be used in an installation.**



Corner pulley

CHAPTER : 2

SYSTEM DESIGN & RULES

2.1 Calculation of flow capacity and installation rules

All sections of the hood should be protected by nozzles .

All catering equipment should be protected by nozzles.

The system should be designed according to hood type , hood dimensions , divisions of the hood , hood height , chimney quantity , chimney dimensions , catering equipment type and catering equipment dimensions .



2.2 Flow capacity calculation & nozzle installation for hood

CHIMNEY & FILTER PROTECTION :

H1 type (1 flow) nozzle is used for chimney & filter protection. (Please check section 4.4 for nozzle flow amounts)

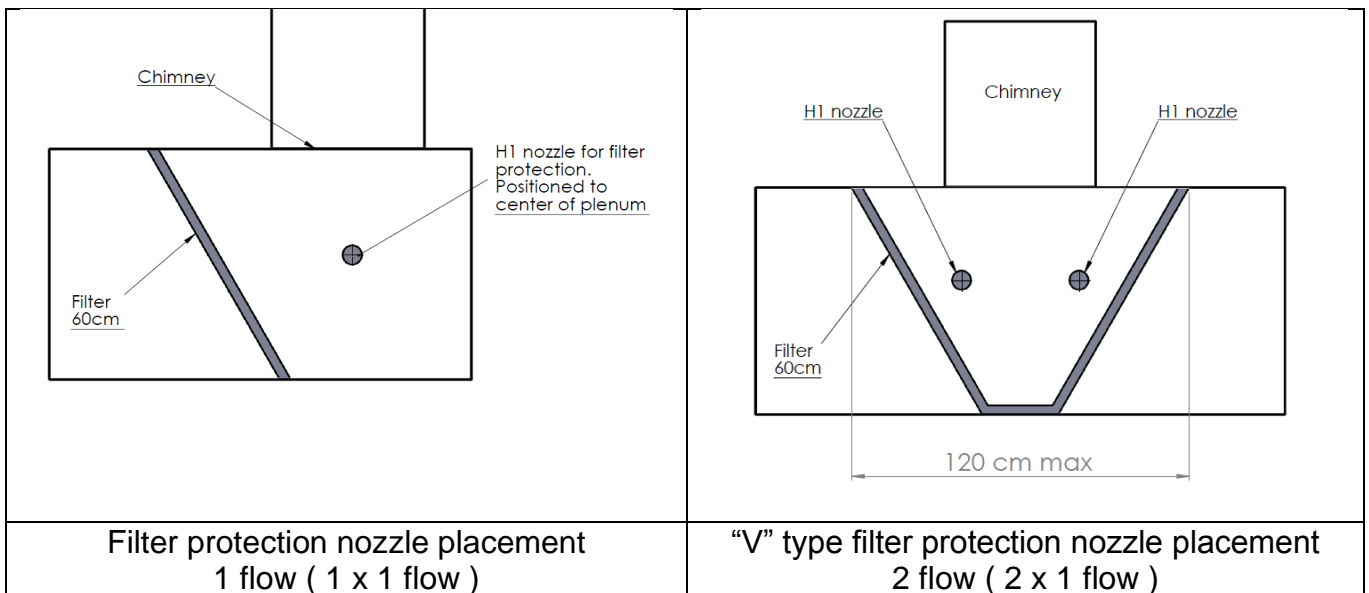
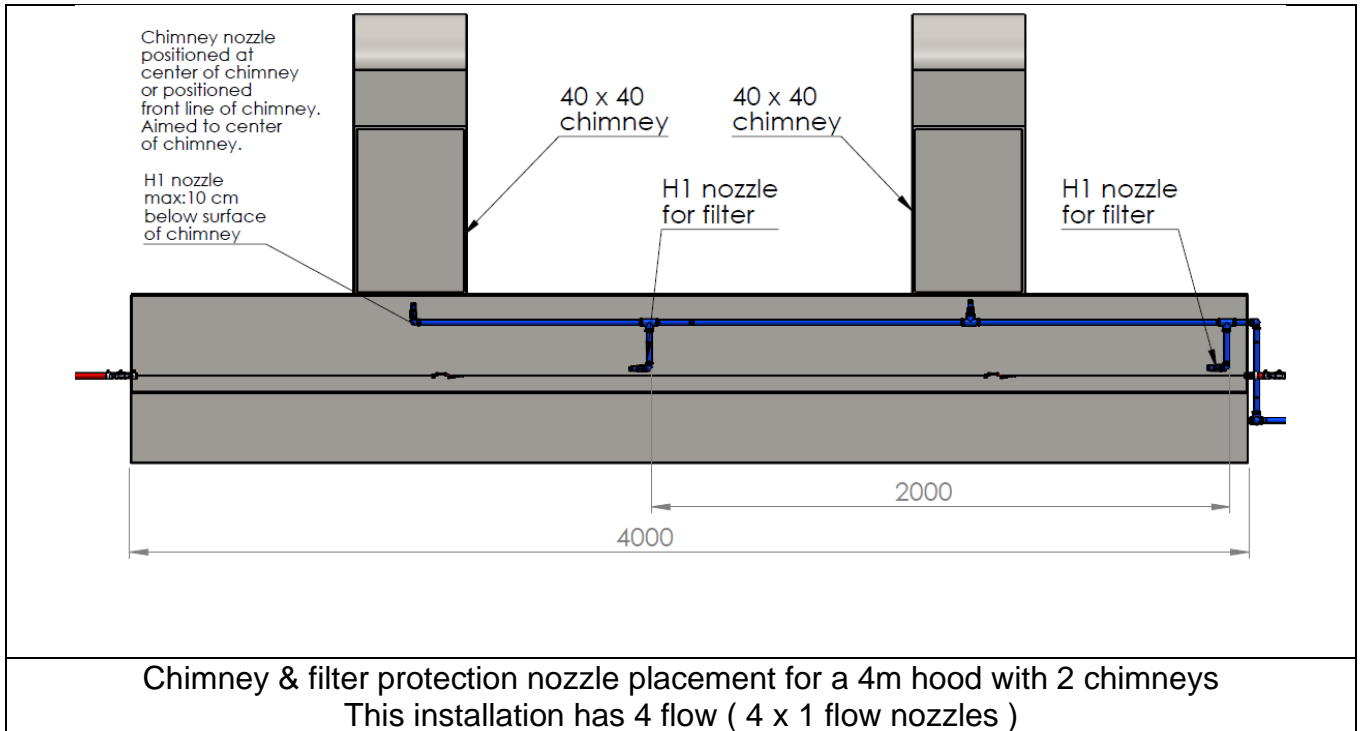
Important Notification !

Please note that chimney protection nozzles SHALL ALWAYS **AIM TO CENTER** OF CHIMNEYS. (positioning tolerance is +- 3 cm for each direction)

Please note that filter protection nozzles SHALL ALWAYS BE POSITIONED TO CENTER of PLENUM (the volume behind the filters) (positioning tolerance is +-5cm for each direction

- **Protection for round chimneys ;**
 - 1 pcs. H1 type nozzle for each chimney with a diameter up to 40 cm.
 - 2 pcs. H1 type nozzles for each chimney with a diameter up to 60 cm.
- **Protection for square chimneys :**
 - 1 pcs. H1 type nozzle for each chimney with up to 40cm x 40cm dimensions.
 - 2 pcs. H1 type nozzles for each chimney with up to 40cm x 60cm dimensions.
 - Add 1 more nozzle for every 20cm more lengths of chimneys.
- **Protection for filters :**
 - H1 type nozzles can spray up to 3m forward.
 - Install 1 pcs. H1 type nozzle for up to 3m hoods.
 - Install 1 pcs. H1 type nozzle for every 2m length for longer than 3m hoods.
 - Example :** 1 pcs. Nozzle for 3m hood.
 - 2 pcs. Nozzle for 4m hood
 - 2 pcs. Nozzle for 5m hood
 - 3 pcs. Nozzle for 6m hood

Important Notice: If the hood is a divided hood , install 1 pcs. H type nozzle for each division up to 3 m.



Install 1 pcs. H1 nozzle for “ \ ” type filters with up to 60 cm height.

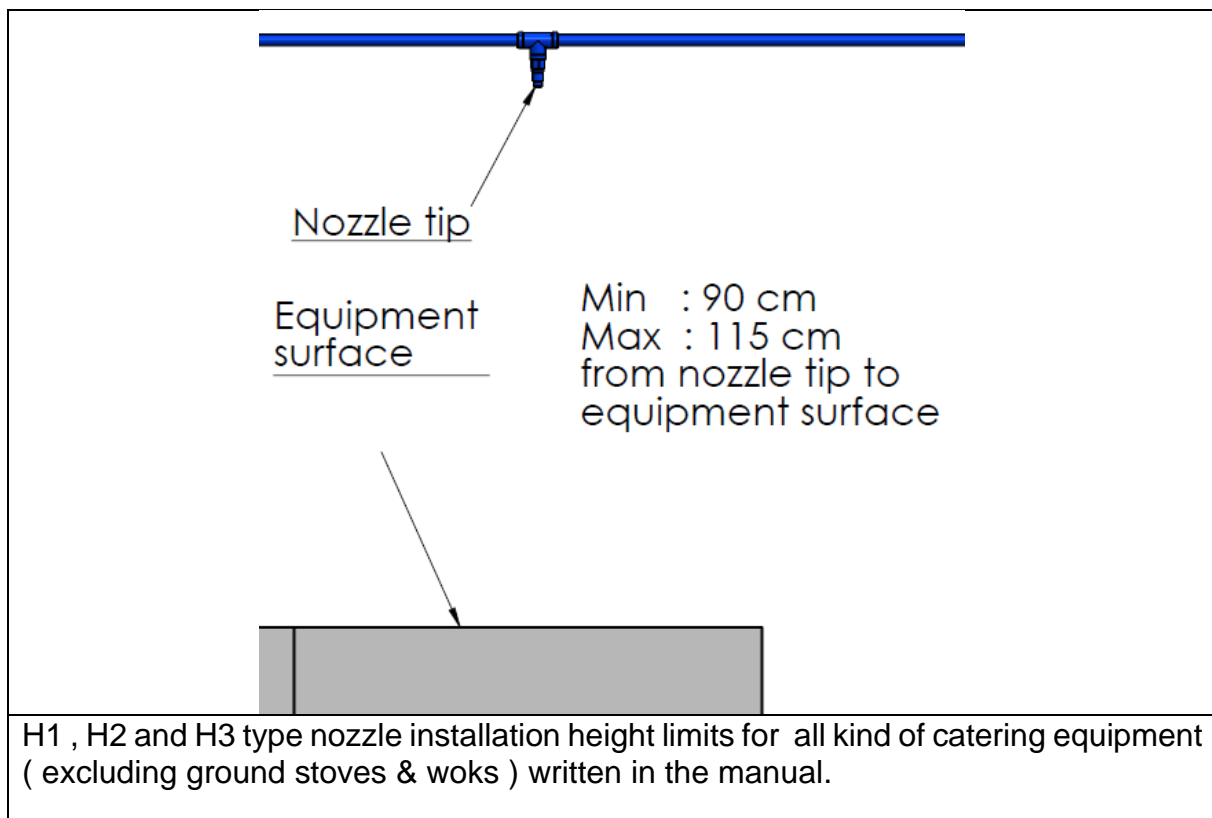
Install 2 pcs. H1 nozzles for “ V ” type filters with up to 60 cm height and 120 cm space. Allowed nozzle distance from filter surface is max : 45 cm for each filter . If the filter distance is smaller than 120 cm , install 1 pcs. H1 nozzle for filter protection.



2.3 CATERING EQUIPMENT PROTECTION

- H2 type nozzle (2 flow) is used to protect an equipment that use vegetable oil or animal fat for cooking . Oil and animal fat occurs the most dangerous fires.
- Fryers and bratt pans are protected by H2 type nozzles.
- H1 type nozzle (1 flow) is used to protect all kind of grills , and ground stoves.
- H3 type nozzle (1 flow) is used to protect rangetops and grill plates.

Notice : Protection area limits for each type nozzle according to equipment dimensions will be introduced at the “**TABLE : 1**” on page 17 .

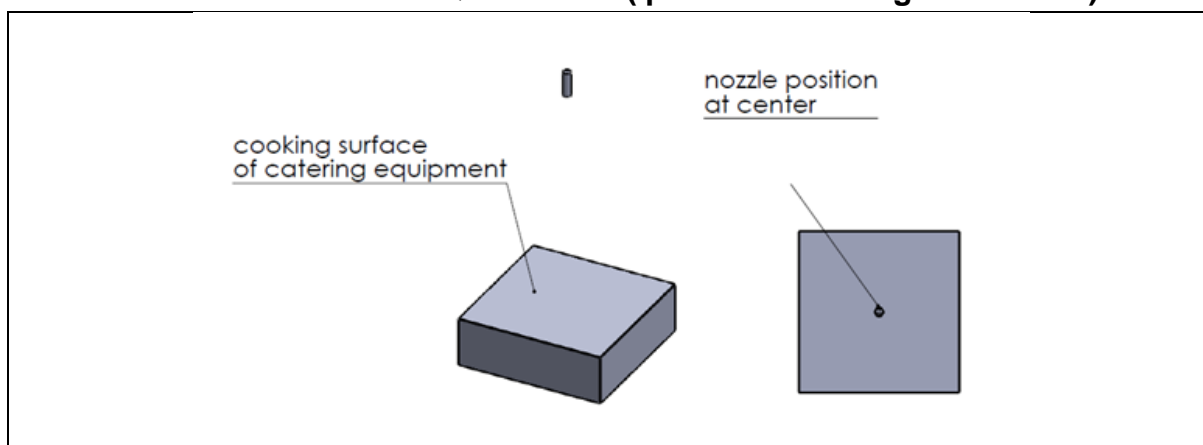


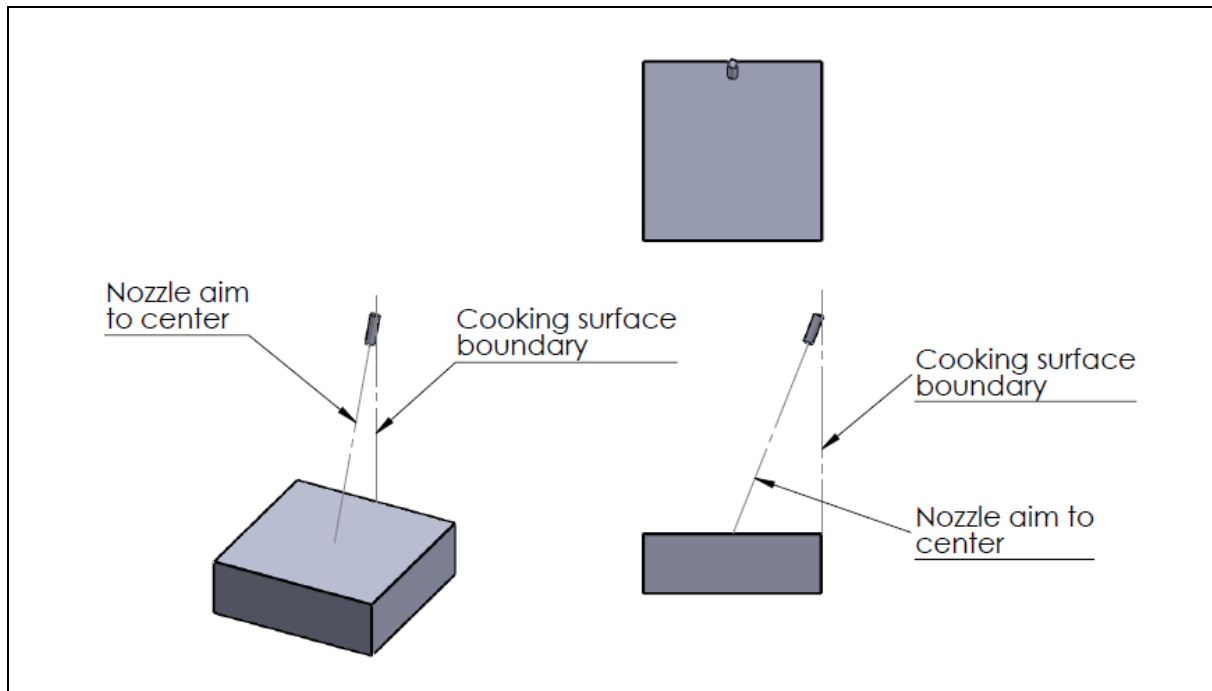
- Nozzle height from ground stove surface limits ;
min: 140cm **max:** 200cm
- Nozzle height from wok surface limits ;
Min : 70cm **max :** 115cm

Catering equipment	Max. COOKING SURFACE dimensions for protection with 1 nozzle (width x length) (cm)	Nozzle type	Nozzle quantity	Nozzle height limitations from catering equipment surface to nozzle tip	Flow calculation
Rangetop	70 x 70	H3	1	90 - 115	1
Ground stove	70 x 70	H1	1	90 – 115	1
Grill plate	60 x 120	H3	1	90 – 115	1
Wood grill	70 x 70	H1	1	90 – 115	1
Gas grill	70 x 70	H1	1	90- 115	1
Lava stone grill	70 x 70	H1	1	90 – 115	1
Ceramic stone grill	70 x 70	H1	1	90 – 115	1
Charcoal grill	70 x 70	H1	1	90 – 115	1
Electric grill	70 x 70	H1	1	90 – 115	1
Wok	Max diameter : 70 Max depth : 20	H1	1	70 – 115	1
Bratt pan	60 x 60	H2	1	90 – 115	2
Single pan deep fat fryer (Including drip board)	60 x 60	H2	1	90 -115	2
Double pan deep fat fryer	2 x (26 x 60) Middle drip board max : 5cm	H2	1	90 – 115	2

TABLE : 1

- The best nozzle positioning is to install the nozzle to the center of catering equipment’s cooking surface.
- If installation to center is not possible, the nozzle may be installed on any position INSIDE OF THE COOKING SURFACE BOUNDARIES AND **SHALL AIM TO CENTER OF EQUIPMENT.** (please see the figures below)





- **EXAMPLES FOR FLOW QUANTITY CALCULATION**

- **Example 1 :**

Hood length : 3m (no division)

Chimney qty : 1 square chimney (40 x 40) .

Filters : 50cm “ \ ” type filter.

Catering equipment :

1 pcs. Single pan deep fat fryer (60 x 60)

1 pcs. Rangetop (70 x 70)

1 pcs. Plate grill (60 x 120)

Calculation for flow quantity :

1 pcs. H1 nozzle for chimney (1 flow)

1 pcs. H1 nozzle for filters (1 flow)

1 pcs. H2 nozzle for fryer (2 flow)

1 pcs. H3 nozzle for rangetop (1 flow)

1 pcs. H3 nozzle for grill plate (1 flow)

TOTAL FLOW QUANTITY : 6 FLOW

Hoodsafer HS8 (8 flow) system is suitable for this project.



- **Example 2 :**

Hood length : 4m (no division)

Chimney qty : 2 pcs. square chimney (40 x 60) .

Filters : 50cm “ V “ type filter.

Catering equipment :

1 pcs. Double pan deep fat fryer (2 x 30 x 70)

1 pcs. Single pan deep fat fryer (30 x 56)

1 pcs. Rangetop (70 x 70)

1 pcs. Plate grill (60 x 120)

Calculation for flow quantity :

2 pcs. H1 nozzle for chimney (2 flow)

4 pcs. H1 nozzle for filters (4 flow) (“ V “ filter with hood longer than 3m)

2 pcs. H2 nozzle for double pan fryer (4 flow) (bigger than max. dimension.)

1 pcs. H2 nozzle for single pan fryer (2 flow)

1 pcs. H3 nozzle for rangetop (1 flow)

1 pcs. H3 nozzle for grill plate (1 flow)

TOTAL FLOW QUANTITY : 14 FLOW

Hoodsafer HS16 (16 flow) system is suitable for this project.

- **Example 3 :**

Hood length : 6m (3 divisions. Each division 2m)

Chimney qty : 3 pcs. square chimney (40 x 40) .

Filters : 50cm “ \ “ type filter.

Catering equipment :

2 pcs. Double pan deep fat fryer (2 x 30 x 70)

2 pcs. Single pan deep fat fryer (30 x 56)

1 pcs. Rangetop (70 x 70)

1 pcs. Plate grill (60 x 120)

1 pcs. Ground stove (60 x 60)

Calculation for flow quantity :

3 pcs. H1 nozzle for chimney (3 flow)

3 pcs. H1 nozzle for filters (3 flow) (1 nozzle for each division)

4 pcs. H2 nozzle for double pan fryer (8 flow) (bigger than max. dimension.)

2 pcs. H2 nozzle for single pan fryer (4 flow)

1 pcs. H3 nozzle for rangetop (1 flow)

1 pcs. H3 nozzle for grill plate (1 flow)

1 pcs. H1 nozzle for ground stove (1 flow)

TOTAL FLOW QUANTITY : 21 FLOW

Hoodsafer HS16 (16 flow) system is not enough for this project.

Multi cylinder application needed for this project. (See below)



If a single 16 flow system is not enough to meet the flow requirements of a hood , UNLIMITED pieces of Hoodsafer systems can be installed together.

In this case , hood and catering equipment flow quantity should be calculated separately.

Solution for example 3 :

- **Hood flow quantity :**

3 pcs. H1 nozzle for chimneys (3 flow)

3 pcs. H1 nozzle for filters (3 flow)

Total of **6 flow** needed .

Hoodsafer **HS8 system** is suitable . HS8 should be installed for hood.

- **Catering equipment flow quantity :**

- 4 pcs. H2 nozzle for double pan fryer (8 flow) (bigger than max. dimension.)

- 2 pcs. H2 nozzle for single pan fryer (4 flow)

- 1 pcs. H3 nozzle for rangetop (1 flow)

- 1 pcs. H3 nozzle for grill plate (1 flow)

- 1 pcs. H1 nozzle for ground stove (1 flow)

Total of **15 flow** needed.

Hoodsafer **HS16 system** is suitable. HS16 should be installed for catering equipment.

✓ In this case , 1 pcs. HS8 for hood protection , 1 pcs. HS16 for catering equipment protection needed.

✓ Both HS8 and HS16 will be installed together by **multi-cylinder application** .

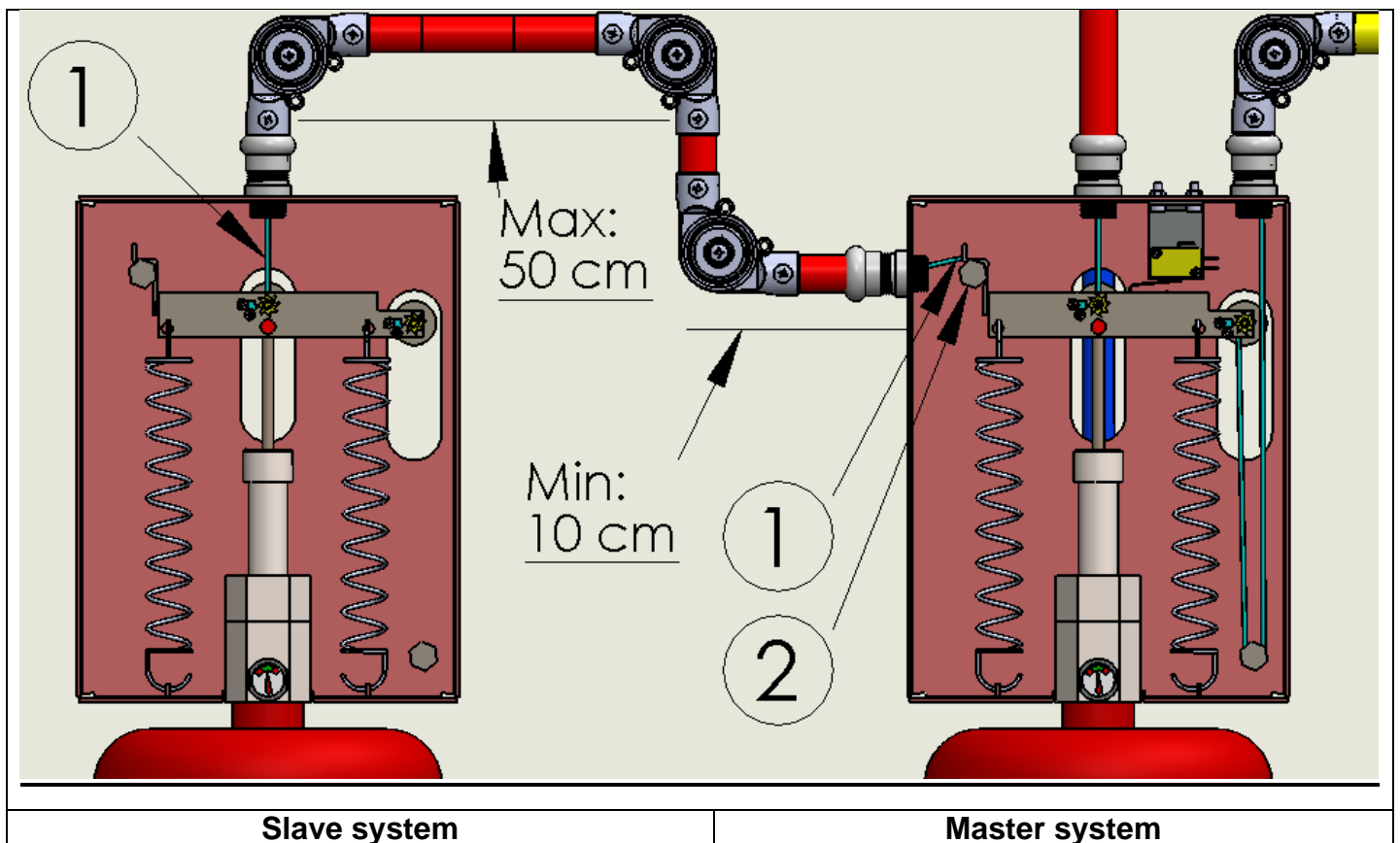
(Please check “ Multi cylinder application on PAGE 21 “ section for detailed information.



2.4 MULTI CYLINDER APPLICATION

Multi cylinder application is needed in case of the biggest (HS16) system is not enough to protect a kitchen hood.

- Always the smaller system protects the hood .
- Always the bigger system protects the catering equipment.
- Detection line is installed for the system that protect the catering equipment. Detection line is NOT INSTALLED for the system that protect the hood.
- Activation is performed by the bigger system . The bigger system triggers the activation mechanism of smaller system.
- The bigger system is named as the “MASTER”
(Detection line , microswitch , gas shut-off valve line shall connected to MASTER system)
- The smaller system is named as the “SLAVE”



1- Multi cylinder line wire

2- Multi cylinder line lever (connect the wire to lever)

✓ Please see “Chapter 3 : Installation “ for detailed information

CHAPTER 3 : INSTALLATION

3.1 Discharge line piping rules and hydraulic calculation

All pipe and fitting materials to be used in the system shall be made of AISI 304 or AISI 304L quality stainless steel (SCH40) . Pipe diameter is 3/8” .The thickness of the pipe should not be less than 2.30 mm. This thickness is required for threads at the end of the pipe.

PLEASE ATTENTION

In the Kitchen hood, the followings are to be considered in discharge pipe line installation.

- 1- Galvanized pipe and fittings shall not be used in the system
- 2- Pipes may not be bent, and outer surface should not be damaged
- 3- Chemical pipe sealer should be used in the pipe inserts, and it should be avoided to use Teflon band etc.
- 4- The pipes should be fixed with metal clamps on hood
- 5- Discharge line pipes should not be painted.
- 6- The pipes should be fixed with metal studs with maximum spacing of 1500 cm.

3.2 – Maximum piping limits for discharge line

Limitation for discharge line length is needed because the Hoodsafer systems are closed-circuit systems. That means , systems have natural-physical limits because there is limited pressurized gas inside of cylinders. Piping limit is defined as system discharge line installed with a straight pipe (no bends)
 Calculated piping limits are given on table below.

Discharge line maximum piping limits for system models	
HS4 system	8 m (straight pipe)
HS8 system	16 m (straight pipe)
HS16 system	24 m (straight pipe)

Discharge line shall be thought as a straight pipe for limitation.

All elbows and TEE's installed on system should be extracted from maximum piping length with their value of “ equivalent pipe length “ .

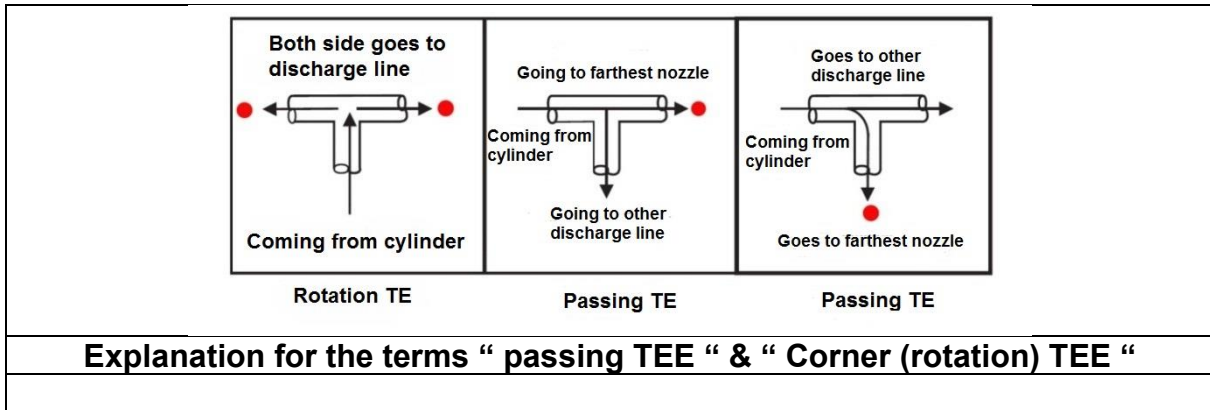
Diameter	Fitting	Equivalent pipe length	The values shall be extracted for each fitting from maximum pipe length .
3/8”	Elbow	0,4 m	
	Passing TEE	0,24 m	
	Corner TEE	0,82 m	



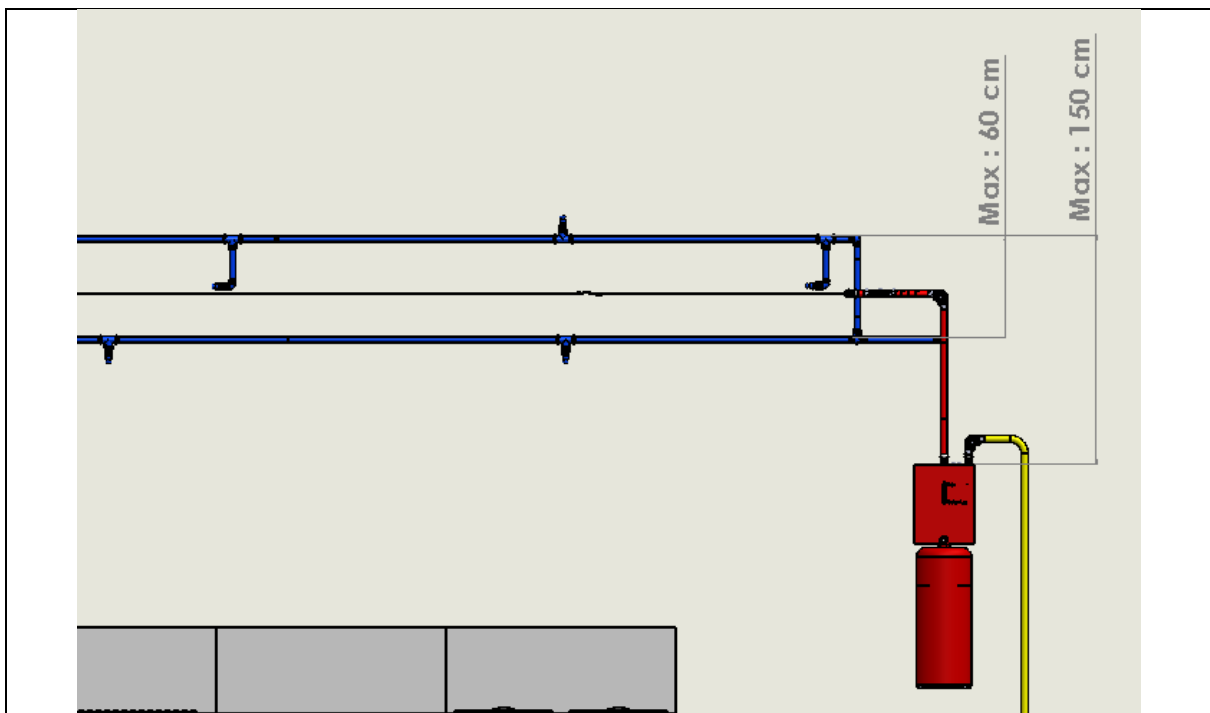
Minimum discharge line definition for preventing splash.

If the first equipment is a deep fat fryer , minimum pipe length must be 3 m. from cylinder.

3 pcs of elbows and 1 pcs corner T should be used as minimum



Explanation for the terms “ passing TEE “ & “ Corner (rotation) TEE “



Cylinder installation height limits

Vertical distance from mechanism to hood protection discharge line may be **150 cm maximum**

Vertical distance from equipment protection discharge line to hood discharge line may be **60 cm maximum**

These distances should be the minimum if possible.



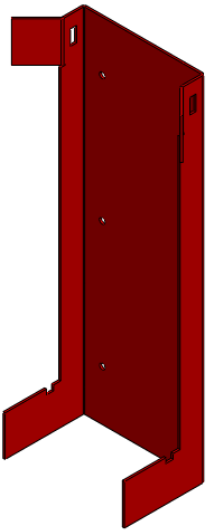
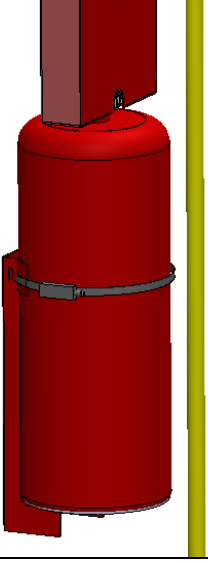
3.3 Hanging up the cylinders for an installation

Please Note ..!!

Pressurized (filled) cylinders are extremely dangerous and may be discharged violently when not handle properly. Such circumstance may cause loss of life and property and physical injuries.

RULES :

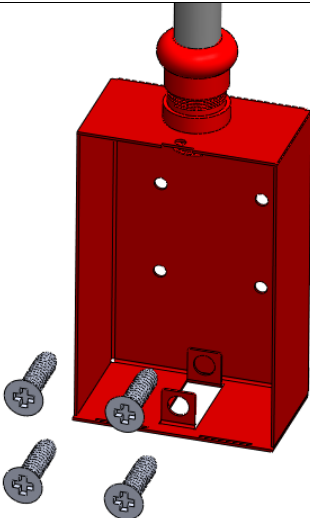

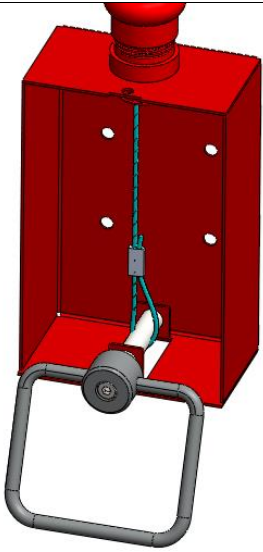
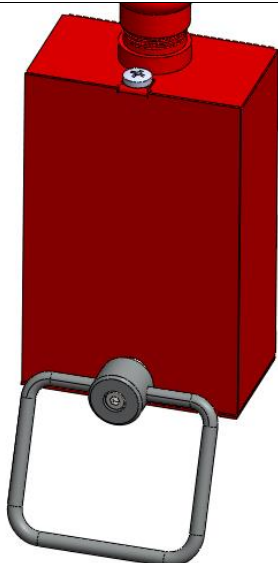
- Cylinder hang brackets shall be fixed on a strong surface.
- Cylinder hang brackets shall be fixed via **minimum 4 pcs** of fixing screws on surface.
- Cylinders should be fixed **minimum 1m far away** from hood .
- Cylinder hang chambers shall be fixed carefully .

	
<p>Figure 1 : Fix the cylinder hang bracket on a strong and flat surface via 6 pcs screws</p>	<p>Figure 2 : Put the cylinder on hang bracket and fix the hang chamber.</p>



3.4 Fixing the remote pull station

- Remote pull station shall be fixed on a strong and flat surface
- Remote pull station shall be fixed via 4 pcs of fixing screws on the surface
- Remote pull station shall be fixed at minimum 140 cm height from floor
- Remote pull station shall be fixed at minimum 2 m far away from hood
- Remote pull station shall be fixed in a easily seem and easily reachable location
- Remote pull station is always located at the end of the detection line

	
<p>Fix the box via 4 pcs screws (includes in package)</p>	<p>Bend the detection line wire as seen on figure. Fix the bended wire with the aluminum collet.</p>
	
<p>Put the pull pin inside of the wire and holes on the box as seen on figure</p>	<p>Slide the shutter vertically down and fix the screw</p>



3.5 Fixing discharge line

- Discharge line shall be fixed via 3/8" metal clamps in every 1,5 m outside of the hood
- Discharge line shall be fixed via metal clamps in every 1 m inside of the hood
- Suitable studs shall be used to fix the metal clamps.
- Chemical thread sealant shall be applied for every connection for discharge line and fittings



3.6 Fixing detection line

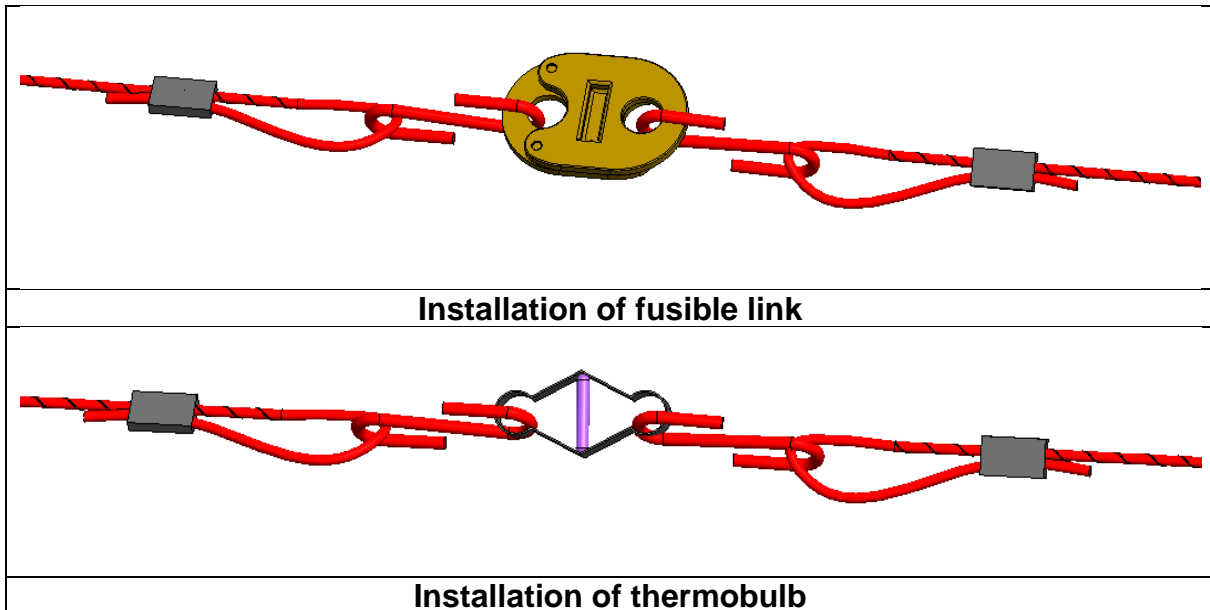
- 18 mm diameter aluminum pipes shall be used to protect the detection line outside (including the line for remote pull station) of the hood.
- No piping needed inside of the hood.
- Corner pulleys shall be used for detection line inlet and outlet of the hood
- Metal clamps shall be used to fix the piping for detection line.
- Metal clamps shall be located at every 1 m on detection line protection piping.

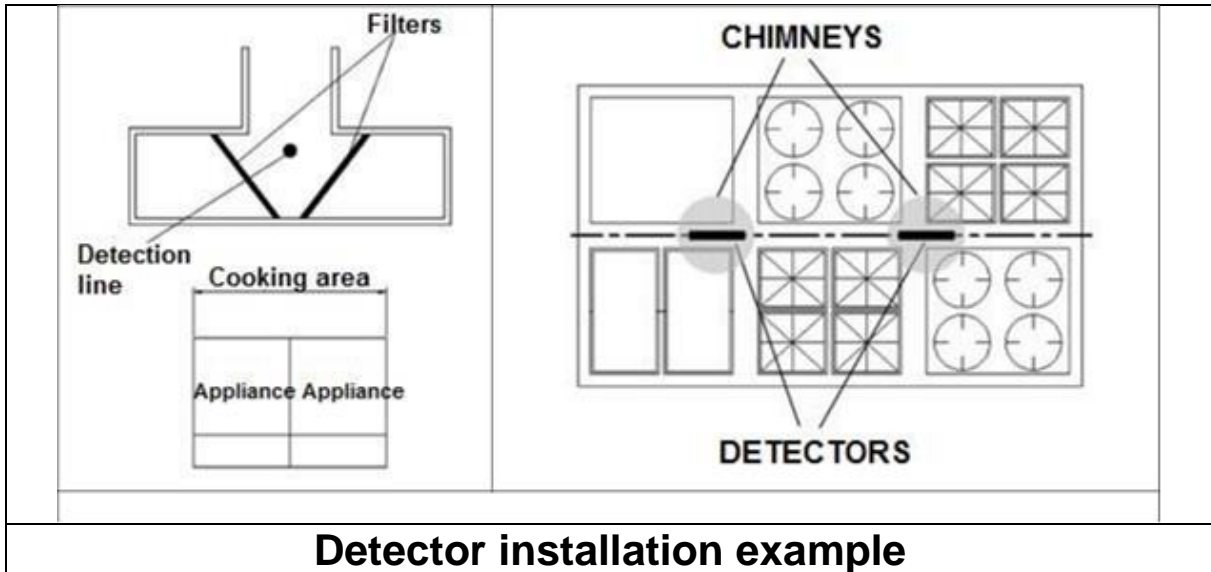




3.7 Installing the fusible links or thermobulbs

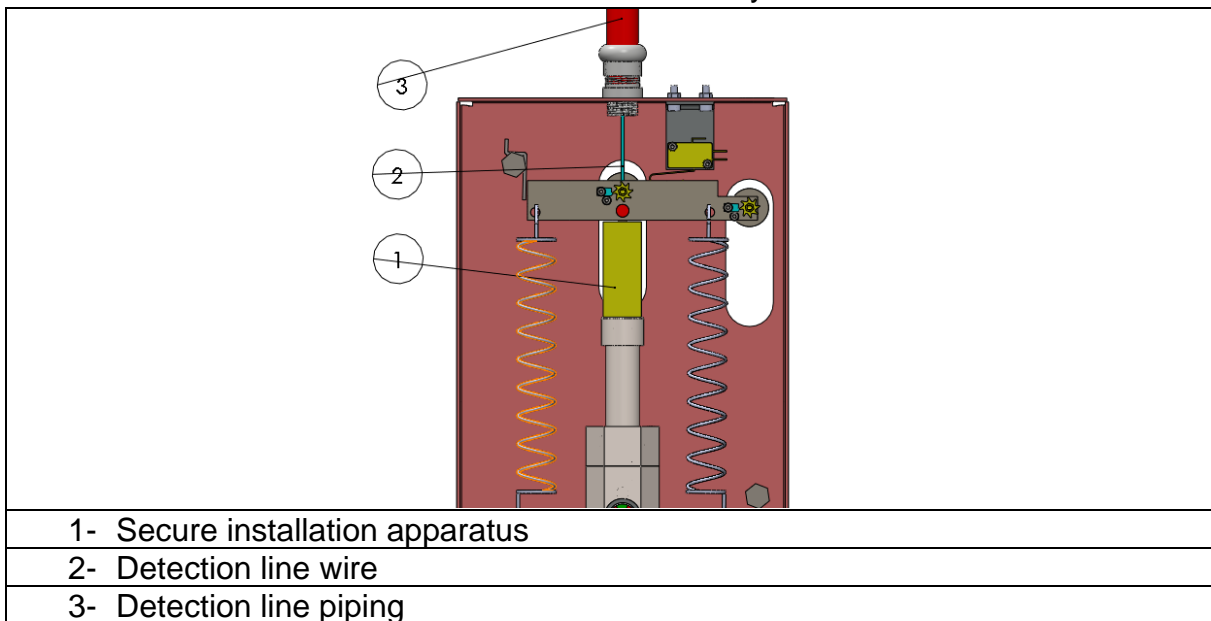
- Detectors should be at the location nearest onto airflow way of hood for the best results . Positioning tolerance is 10 cm for each direction
- Please see the figures below
- Detection wire shall be bended as seen on figures and fixed with aluminum collet
- “S hooks” shall be used to hold the detectors
- Detection line total Length is maximum 40 m.
- Total maximum bends in the detection line is 20 units.
- Maximum detector installation height is 160 cm from max height of appliance surface. Minimum detector installation height is 125 cm from max height of appliance surface.
- Fire detection distance of each detector is 120 cm. Location tolerance is 10 cm for each direction.
- 1 detector should be available at outlet of each channel. If the kitchen hood is over 120 cm, detector shall be placed at each 137 cm.
- For fast fire detection, detectors are to be located up of the cooking device and at the direction of the smoke discharge of the cooking device.
- In order to prevent accidental activation of the system, it should be towards the channel outlet and at the required height.

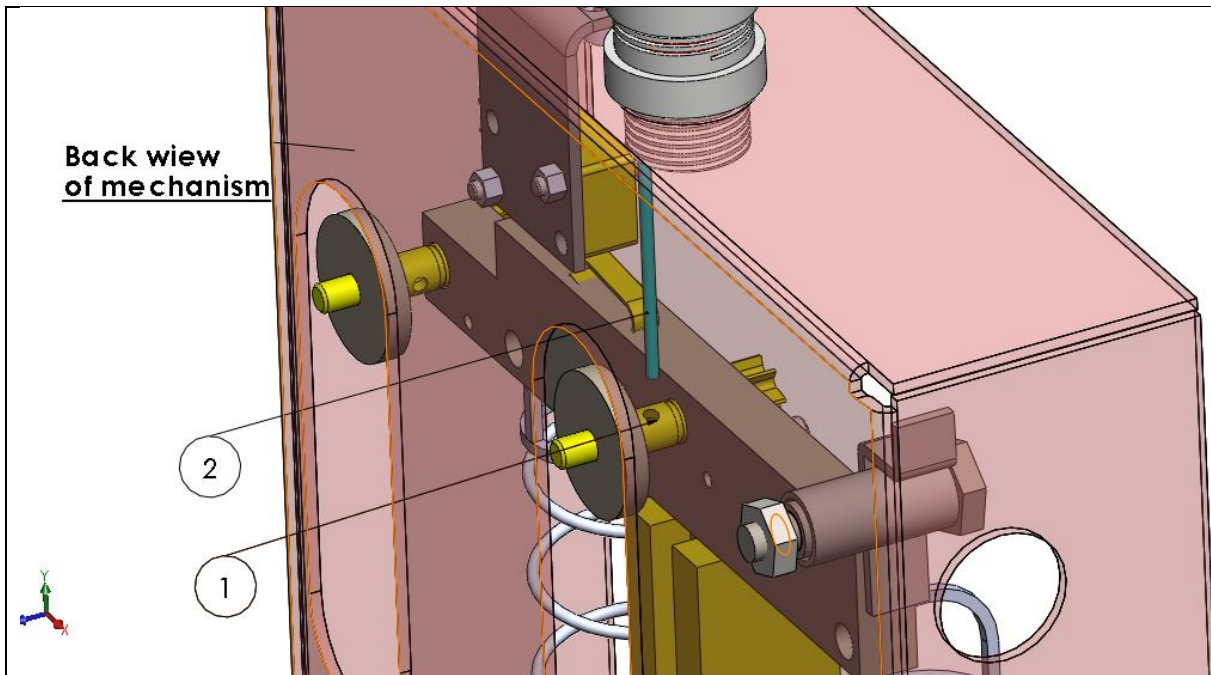




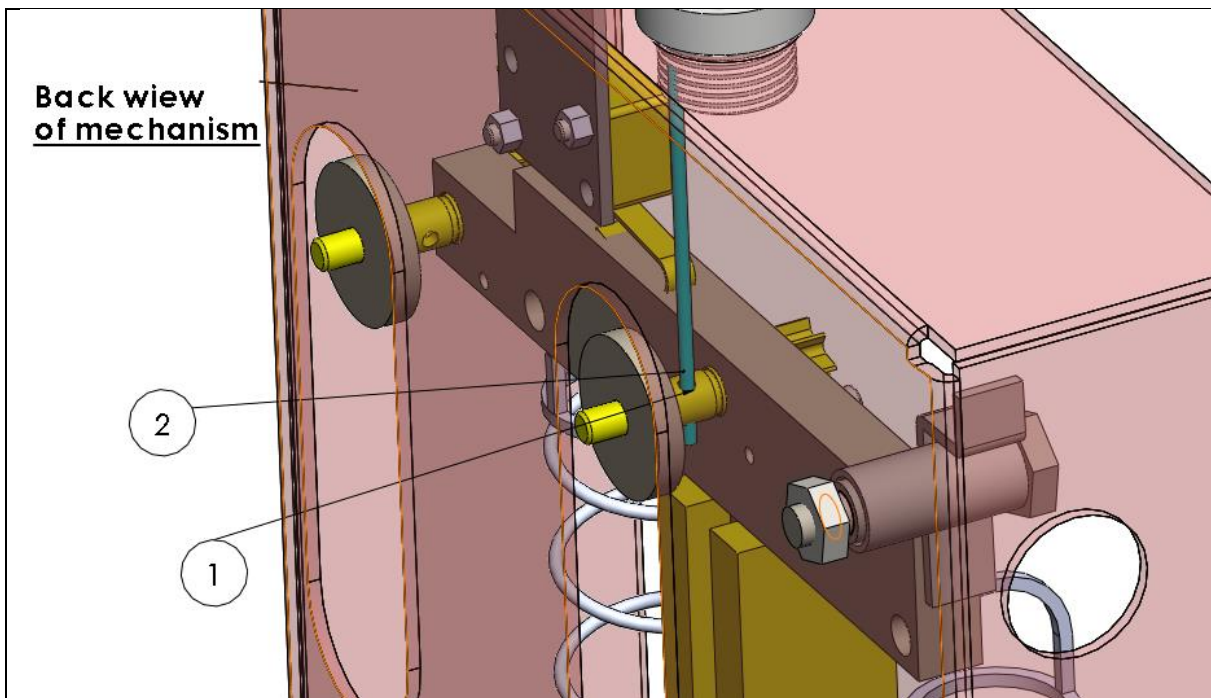
3.8 Installing the activation mechanism

- The activation mechanism is delivered in ready-to use condition

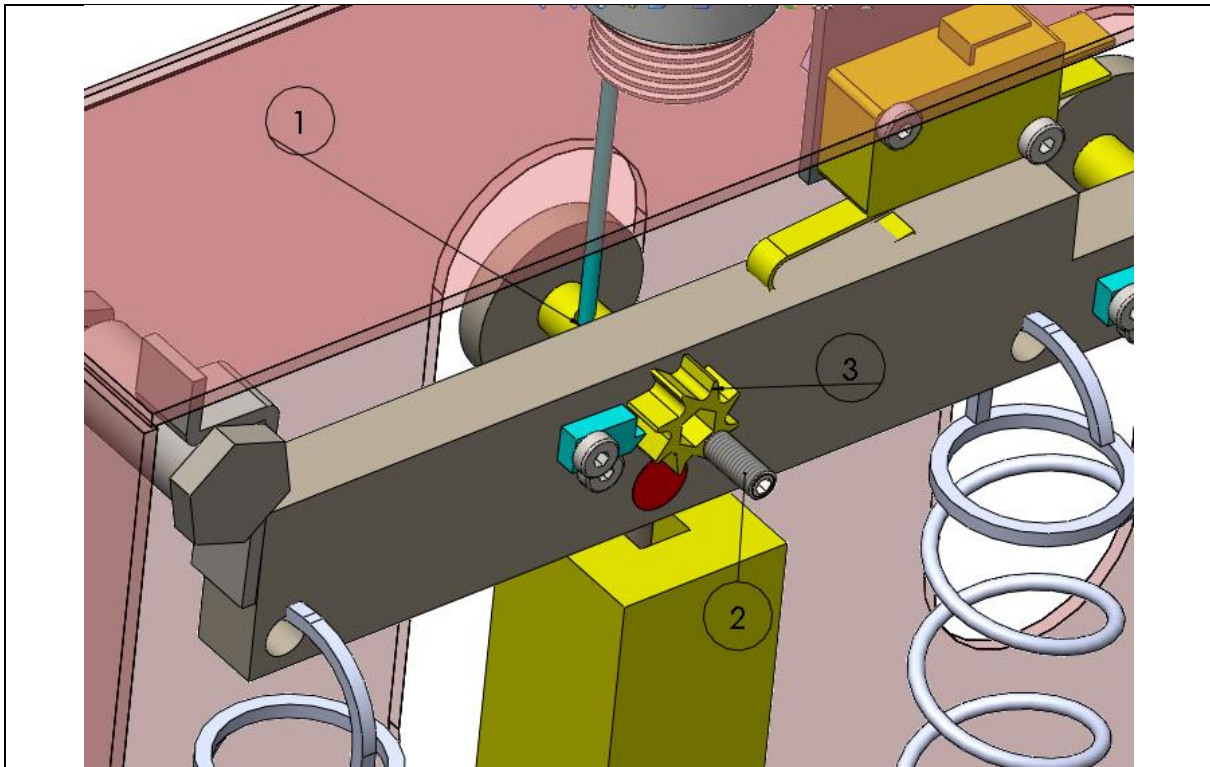




Push the wire of detection line (2) into tension gear hole (1)

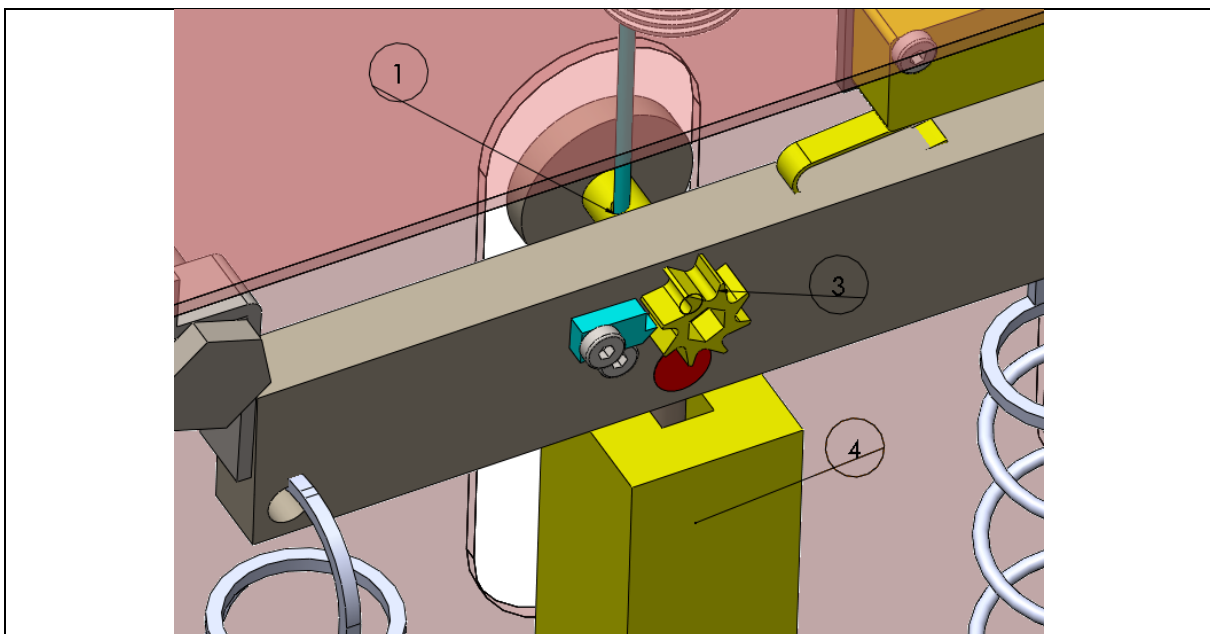


Push the wire of detection line (2) into tension gear hole (1)



Tighten the detection line wire (1) via the setscrew (2) inside of the tension gear (3).

No:2 allen wrench is used to tighten the setscrew.



Turn the tension gear (3) clockwise to finish detection line installation.

No : 5 allen wrench is used to turn the tension gear (3)

Tensioning shall be performed after installation all detectors and the remote pull station .

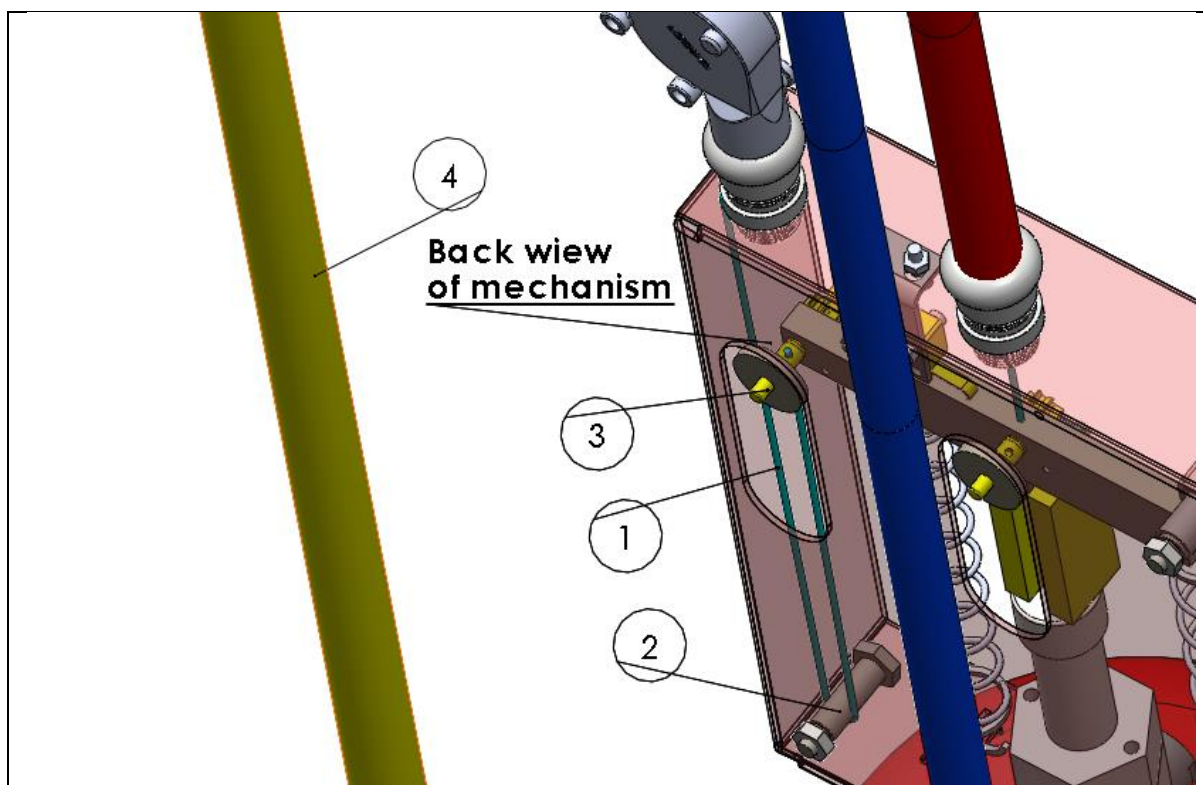
Tension of detection wire is suitable when you'll be able to remove the secure installation apparatus (4) .



WARNING !

- **Secure installation apparatus shall be removed after tensioning the detection line !**
- **The system won't work if the secure installation apparatus is not removed !**
- **The system will be operational when the secure installation apparatus is removed !**

3.9 Gas shut-off valve (mechanical) installation

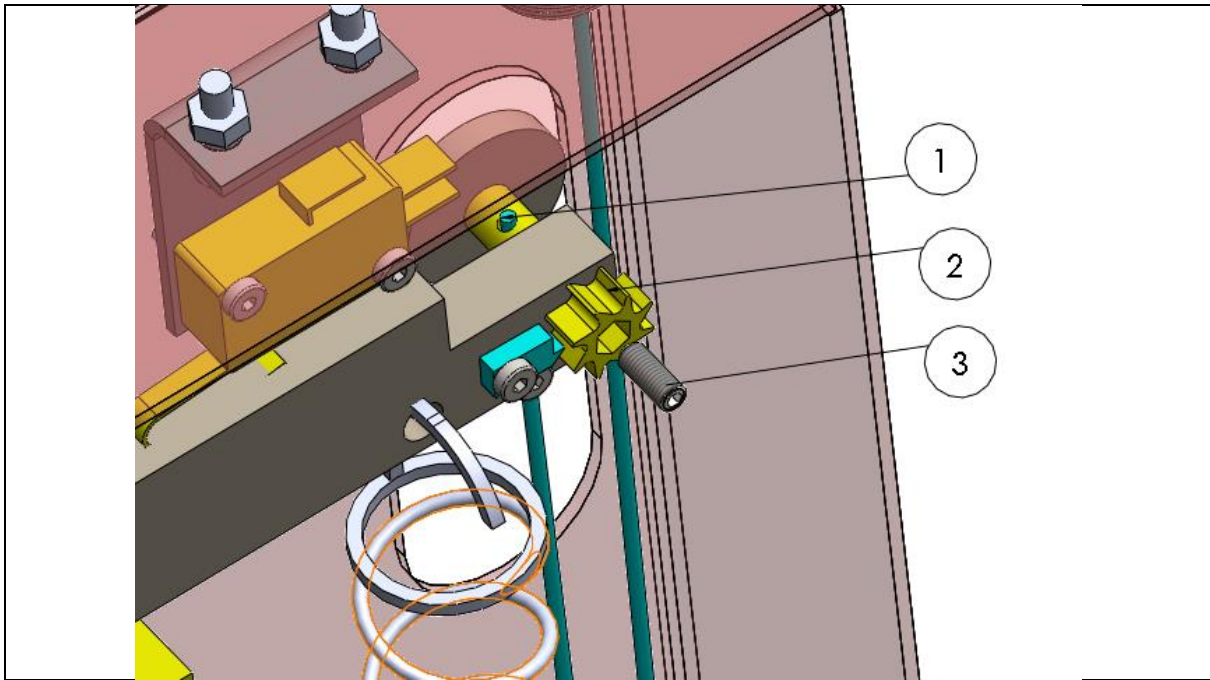


- 1- The wire of gas shut-off valve
- 2- Holding fixture for gas shut-off valve
- 3- Tension gear for gas shut-off valve
- 4- Protection piping (D:18 aluminum) for gas shut-off valve wire

Use corner pulleys for gas shut-off valve wire (1) installation from the valve to the mechanism

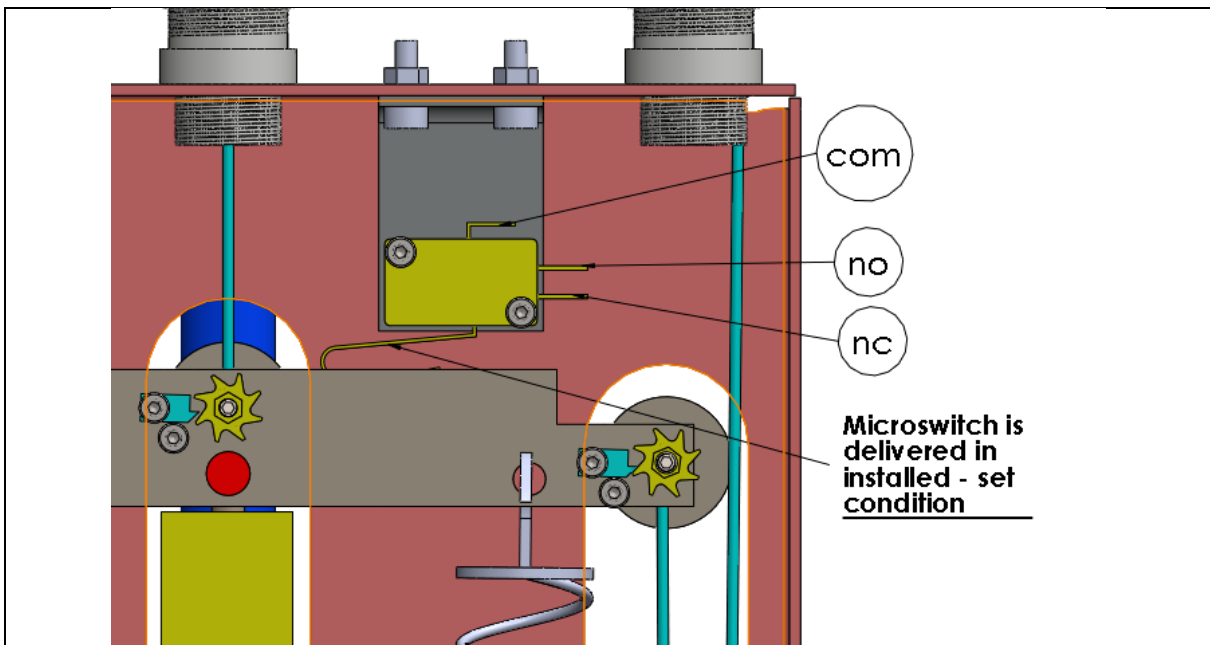
Pull the wire and bend over by holding fixture for gas shut-off valve (2)

Push the wire inside of the hole of tension gear for gas shut-off valve (3)



Tighten the wire (1) via the setscrew (3) inside of the tension gear for gas shut-off valve (2)
Turn the tension gear (2) to open the gas shut-off valve.
When turning the gear (2) is not available , that means the valve is opened.

3.10 Microswitch connections



Microswitch connection diagram

Hoodsafer recommend to install microswitch to shut off ventilation fans in case of fire. Shutting off the fans acts better performance of fire suppression system.



3.11 Hoodsafer wet chemical

Only Hoodsafer wet chemical is used in HS series fixed fire suppression systems.

Filling quantity (+/-%5) ;

6 liter (8,6 kg) for HS4 system

9,5 liter (13,6 kg) for HS8 system




20 liter (28,8 kg) for HS16 system

ATTENTION !

- Hoodsafer wet chemical is a K_2CO_3 solution and heavier than water.
- Only Hoodsafer wet chemical containers should be used for filling !
- After filling of wet chemical , hands and any kind of material contacted with wet chemical should washed with hot water.
- Do not contact wet chemical to any kind of food




Wet chemical containers are used for refilling of activated system cylinders. Containers can be used for 1 time.

There are 3 different models of wet chemical containers .

		
6 Liter wet chemical container for HS4	9,5 Liter wet chemical container for HS8	20 Liter wet chemical container for HS16



3.12 Labels and documentation

 <p>HS series 4 flow fixed kitchen fire suppression system</p> <p>USER CHECKS:</p> <ul style="list-style-type: none"> System pressure gauge should be checked every week If the system pressure is out of the green area, please call immediately Hoodsafer service and do not operate catering equipment until the system is available for service Oil or dirt on nozzles should be cleaned kindly every week with a wet wipe or towel Do not change nozzle directions Gas shut-off valve (if installed) connection should be checked every week Please take care of detectors and nozzle positions while cleaning the hood. <table border="1" data-bbox="231 436 555 526"> <thead> <tr> <th colspan="2">SYSTEM INFO</th> <th>Installation date</th> <th>Maintenance date</th> </tr> </thead> <tbody> <tr> <td>Suppression agent</td> <td>Wet chemical</td> <td></td> <td></td> </tr> <tr> <td>Cylinder capacity</td> <td>6 liter</td> <td></td> <td></td> </tr> <tr> <td>Flow capacity</td> <td>4 flow</td> <td></td> <td></td> </tr> <tr> <td>Propellant gas</td> <td>Nitrogen</td> <td></td> <td></td> </tr> <tr> <td>Cylinder Pressure</td> <td>15 bar</td> <td></td> <td></td> </tr> <tr> <td>Discharge time</td> <td>>20 sec.</td> <td></td> <td></td> </tr> </tbody> </table> <table border="1" data-bbox="231 526 555 616"> <tr> <td>Manufacturer</td> <td>Installer</td> </tr> </table>	SYSTEM INFO		Installation date	Maintenance date	Suppression agent	Wet chemical			Cylinder capacity	6 liter			Flow capacity	4 flow			Propellant gas	Nitrogen			Cylinder Pressure	15 bar			Discharge time	>20 sec.			Manufacturer	Installer	 <p>HS series 8 flow fixed kitchen fire suppression system</p> <p>USER CHECKS:</p> <ul style="list-style-type: none"> System pressure gauge should be checked every week If the system pressure is out of the green area, please call immediately Hoodsafer service and do not operate catering equipment until the system is available for service Oil or dirt on nozzles should be cleaned kindly every week with a wet wipe or towel Do not change nozzle directions Gas shut-off valve (if installed) connection should be checked every week Please take care of detectors and nozzle positions while cleaning the hood. <table border="1" data-bbox="635 436 959 526"> <thead> <tr> <th colspan="2">SYSTEM INFO</th> <th>Installation date</th> <th>Maintenance date</th> </tr> </thead> <tbody> <tr> <td>Suppression agent</td> <td>Wet chemical</td> <td></td> <td></td> </tr> <tr> <td>Cylinder capacity</td> <td>9.5 liter</td> <td></td> <td></td> </tr> <tr> <td>Flow capacity</td> <td>8 flow</td> <td></td> <td></td> </tr> <tr> <td>Propellant gas</td> <td>Nitrogen</td> <td></td> <td></td> </tr> <tr> <td>Cylinder Pressure</td> <td>15 bar</td> <td></td> <td></td> </tr> <tr> <td>Discharge time</td> <td>>20 sec.</td> <td></td> <td></td> </tr> </tbody> </table> <table border="1" data-bbox="635 526 959 616"> <tr> <td>Manufacturer</td> <td>Installer</td> </tr> </table>	SYSTEM INFO		Installation date	Maintenance date	Suppression agent	Wet chemical			Cylinder capacity	9.5 liter			Flow capacity	8 flow			Propellant gas	Nitrogen			Cylinder Pressure	15 bar			Discharge time	>20 sec.			Manufacturer	Installer	 <p>HS series 16 flow fixed kitchen fire suppression system</p> <p>USER CHECKS:</p> <ul style="list-style-type: none"> System pressure gauge should be checked every week If the system pressure is out of the green area, please call immediately Hoodsafer service and do not operate catering equipment until the system is available for service Oil or dirt on nozzles should be cleaned kindly every week with a wet wipe or towel Do not change nozzle directions Gas shut-off valve (if installed) connection should be checked every week Please take care of detectors and nozzle positions while cleaning the hood. <table border="1" data-bbox="1038 436 1362 526"> <thead> <tr> <th colspan="2">SYSTEM INFO</th> <th>Installation date</th> <th>Maintenance date</th> </tr> </thead> <tbody> <tr> <td>Suppression agent</td> <td>Wet chemical</td> <td></td> <td></td> </tr> <tr> <td>Cylinder capacity</td> <td>20 liter</td> <td></td> <td></td> </tr> <tr> <td>Flow capacity</td> <td>16 flow</td> <td></td> <td></td> </tr> <tr> <td>Propellant gas</td> <td>Nitrogen</td> <td></td> <td></td> </tr> <tr> <td>Cylinder Pressure</td> <td>15 bar</td> <td></td> <td></td> </tr> <tr> <td>Discharge time</td> <td>>20 sec.</td> <td></td> <td></td> </tr> </tbody> </table> <table border="1" data-bbox="1038 526 1362 616"> <tr> <td>Manufacturer</td> <td>Installer</td> </tr> </table>	SYSTEM INFO		Installation date	Maintenance date	Suppression agent	Wet chemical			Cylinder capacity	20 liter			Flow capacity	16 flow			Propellant gas	Nitrogen			Cylinder Pressure	15 bar			Discharge time	>20 sec.			Manufacturer	Installer
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HS4 Cylinder label	HS8 Cylinder label	HS16 Cylinder label																																																																																										

 <p>REMOTE PULL STATION IN CASE OF FIRE PULL PIN</p> 	 <div style="border: 2px solid red; padding: 10px; text-align: center;"> <p>WARNING! Don't use any Cooking Appliances if Extinguishing System is Out of Order Do not change equipment places ! If any change is required , please call HOODSAFER SERVICE</p> </div>	 <div style="border: 2px solid red; padding: 10px; text-align: center;"> <p>WARNING ! This cooking equipment is fitted with a HOODSAFER FIRE PROTECTION SYSTEM which may OPERATE AUTOMATICALLY and SHUT OF POWER OR FUEL TO THE APPLIANCES</p> </div>
Remote pull station label	User warning label	Installation warning label



CHAPTER 4 : MAINTENANCE & SERVICE

4.1 Test and Commissioning

The installation should be performed by authorized HOODSAFER installers. The installation is to be conducted with the information and materials given in this system manual. The transactions are to be conducted in the following order.

- First of all, system cylinders should be fixed on a flat surface/ flat wall.
- Remote pull station shall be mounted in the system
- Detector line should be installed
- Discharge line pipework should be performed.
- The final control is made for the system installation after installation of the nozzles
- Sealing should be performed for warranty determination and safety
- The labels shall be attached in the system.
- The suitable Installation label shall be attached to show the Control date and filling date on the cylinder,
- Perform leakage test for all system. Check microswitch operation.
- The end-users shall be trained for daily and weekly checks

4.2 Training

Kitchen personnel and officers should be trained according to the information in the user manual of the system, the followings should be told properly;

- a. Definition of the system
- b. Automatic operation
- c. Manual operation in the event of fire
- d. Periodical checks
- e. Logging of maintenance
- f. Those to be considered during use.

4.3 Periodical maintenance

The system is to be subject to periodical maintenance per minimum 6 months as per the international standards. System should be checked against if appliance risk has modified. Appliance positions should be checked if the right nozzles-detectors are located at the right places. All assets and passive components in the system are to be checked by the qualified service personnel and maintenances are to be conducted. **Failure of maintain the system may result false activation or failure to activate in a fire**. Periodical controls and maintenance are provided below.



4.4 Detectors and Detector Line Periodical Maintenance

- The covers of all roller bends in the system are removed and the rollers inside the bends are controlled. The bends of all tight or dirty rollers are to be removed, and washed with oil remover and hot water, and convenient movement is ensured.
- Failed roller bends are to be replaced with the new ones.
- All detectors in the detection line are removed, and washed with warm water, and placed in their original places. The detector is controlled by eye after physical control, and damaged ones are replaced.
- The detectors are to be replaced every year. The former detectors shall be given to the authorized service dealer for disposal.
- The rust or damage are to be controlled in the stainless steel tension wire used in the detector line. **No attachment is allowed!**
- Aluminum pipes and connection couplings should be checked in detection line. The connection elements (clamps) should be checked. Damaged ones should be changed.

4.5 Remote pull station periodical maintenance

- It is checked for rust or damage in the pull pin and damaged ones are changed.
- Steel wire is checked. Damaged wire is changed.
- Detection line wire connection is checked. Damaged one is changed.
- Remote pull station cover is checked. Damaged one is changed.
- Remote pull station is set and sealed after closing the cover

4.6 Activation mechanism periodical maintenance

- Visual check against rust or damage on mechanism box and lid
- Visual check pressure gauge
- Visual check on inside mechanism

4.7 Nozzle Periodical Maintenance

- The nozzles are removed and their positions should be noted.
- Nozzle cap and oil foil of the nozzles are removed
- Nozzle atomiser should not be removed.
- All of it will be washed in the hot water mixed with oil remover.
- Visual check and risky nozzles should be replaced
- Nozzles are installed as per cooking equipment
- Angle and centering are controlled and verified.



4.8 System Cylinder Periodical Maintenance

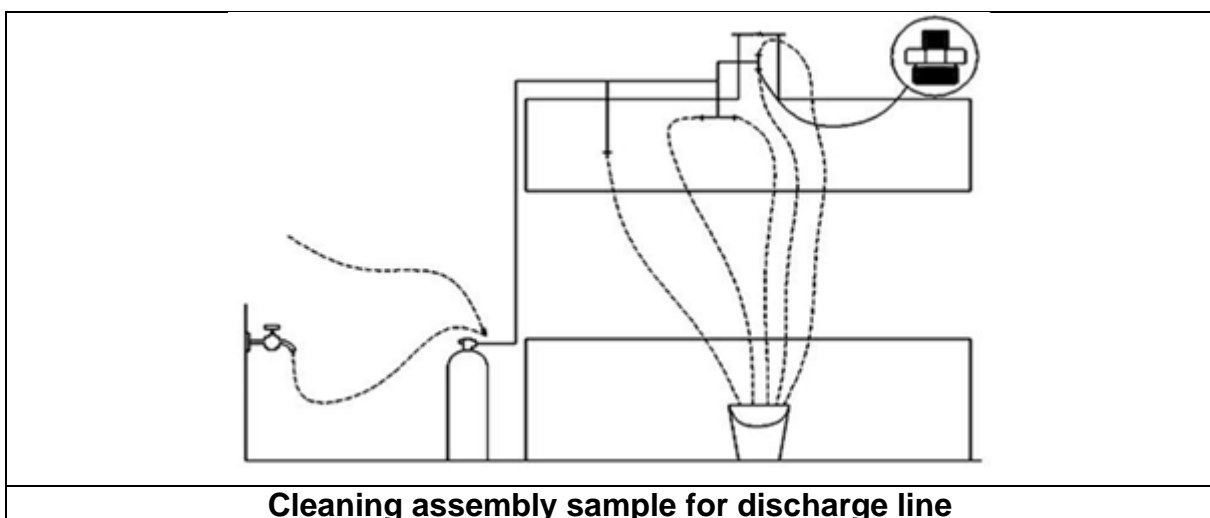
- Cylinder should be checked against corrosion and deformation
- Cylinder pressure should be (15 Bar) And should be re-pressurized if lower
- Label compliance should be controlled. Damaged one should be replaced.
- System cylinder shall either be tested hydrostatically every 5 years or replaced. Wet chemical agent shall also be replaced

4.9 Cleaning Instructions for System

- System components may be cleaned by wet nappy of standard kitchen appliance cleaning chemicals.
- Don't apply force on activation mechanism and nozzles while cleaning.
- **Do not clean detection line and detectors. Applying force on detectors and the line may occur unwanted activation.**

4.10 Discharge Pipes Periodical Maintenance

- Discharge pipes connections are to be checked at every periodical maintenance.
- Inside of all discharge pipes are to be cleaned with hot water after system activation.
- For this process, the mechanism in the below figure may be used. The coupling at the system tube outlet is removed and it is connected to the city water network. Oil covers and foils at the ends of nozzles are removed. It may be collected inside a bucket with proper size of hose from the tip of each nozzle. (it is prevented that the cooking equipment under the kitchen hood will be affected thereby). The city network is opened and it is allowed for passing of water inside the discharge pipes for 5 minutes.





4.11 Labels and markings

- The label on the remote pull station should be checked. Damaged or removed label is replaced.
- The label on the cylinder should be checked. Damaged or removed labels are replaced.
- User manual should be checked . Replaced if needed.
- A label containing the information of periodical maintenance and personnel making the maintenance on the cylinder is attached.

END OF THE MANUAL



شركة أزيدك
لأجهزة السلامة

Approval.

الإدارة: جدة - حي الصفا - شارع الأمير ماجد - الصفا بلازا - مبنى A الدور الثالث مكتب 340 - س.ت: 403026741 - هاتف - 6342166 - 0126880407 -

فاكس تحويلة: 111-: 0581444606

المعرض | : جدة - شارع البلدية - مركز الفانوس | المعرض 2: مكة - شارع الحج

الفروع: الرياض - ينبع - المدينة - الطائف - خميس مشيط - الدمام

info@azeidk.com www.Azeidk.com

2022-08-15 : تاريخ الطباعة :
AM 6:56 : وقت الطباعة :
PAC22008840 : رقم الطلب :



وزارة الداخلية
الإدارة العامة للدفاع المدني
إدارة الوقاية

شهادة عدم ممانعة

نوع الشهادة : اعتماد منتج

بيانات المنشأة

الإسم التجاري :

رقم الرخصة التجارية :

رقم الهاتف :

رقم قيد المنشأة :

البريد الإلكتروني :

التصنيف : Fire Fighting Systems

إسم المنتج : Kitchen / Range Hood Extinguishing System

تفاصيل الشهادة

تم مراجعة الطلب المقدم واتضح بأنه لا مانع من اعتماد المنتج /المنتجات الموضحة في التقرير الفني المرفق بناءً على اعتماده من قبل الهيئته المختبرية الموضحة في التقرير الفني المرفق.

ملاحظات

1. يجب على الشركة الالتزام والعمل بما جاء في اشتراطات قسم أنظمة السلامة التي تم الاطلاع والموافقة عليها من خلال الموقع.
2. يجب ان يقوم بتركيب هذا المنتج من قبل مهندسين وفنيين معتمدين من الإدارة العامة للدفاع المدني.
3. يجب ان يحمل المنتج العلامة التجارية للهيئته المختبرية المعتمدة والموضحة في التقرير الفني المرفق.

تاريخ الاعتماد : 2022-08-14 تاريخ الإنتهاء : 2024-08-13

عدير إدارة الوقاية /ع
الإدارة العامة للدفاع المدني



DATE : 2022-08-15 : التاريخ
PERMIT # PAC22008840 : رقم الطلب



وزارة الداخلية
الإدارة العامة للدفاع المدني
إدارة الوقاية

TECHNICAL REPORT

التقرير الفني

PRODUCT	Kitchen / Range Hood Extinguishing System	منتج
PRODUCT APPLICATION	Fire Fighting Systems	تصنيف المعدة
APPLICANT / P.O BOX		مقدم الطلب
MANUFACTURER / LOCATION	HOODSAFER YANGIN SNDRME SSTEMLER SAN / Republic of Turkiye	الشركة المصنعة / بلد الصنع

الوصف

الموديل

Fire Extinguishing Systems in Commercial Kitchens, Mechanical Kitchen Suppression System, 8 Flow Capacity, 10 Litre Flame Killer Wet Chemical, Stored Pressure, Temperature Activated (Thermo Bulb) and Manual Activated.	HS-8		
Fire Extinguishing Systems in Commercial Kitchens, Mechanical Kitchen Suppression System, 16 Flow Capacity, 20 Litre Flame Killer Wet Chemical, Stored Pressure, Temperature Activated (Thermo Bulb) and Manual Activated.	HS-16		
3RD PARTY CERTIFICATE / APPROVAL	KM 767382	BSI/KITEMARK	شهادة المختبرات المساندة (من هيئات معتمدة)
RECOMMENDATIONS			التوصيات

Kitemart Certificate # KM 767382
Tested to BS EN 17446:2021.
Branded as: HS Series

This product approval shall comply with the Design, Inspection, Installation, Testing and Maintenance requirements of NFPA 96 (and/or other related NFPA Codes / Standards), other acceptable International Codes / Standards, Local Regulations and/or Manufacturer's Published Instructions subject to the technical review and approval of the Authority Having Jurisdiction (Qatar Civil Defense).

ع / ٤
مدير إدارة الوقاية
الإدارة العامة للدفاع المدني



OWNER	CONSULTANT	CONTRACTOR
 هاند العالمية للفنادق والمنتجعات السياحية HAND INTERNATIONAL HOTELS & RESORTS	 تصميم - إشراف - إدارة مشاريع	 شركة أزيدك لأجهزة السلامة

PROJECT NAME: Platinum Park	LOCATION: Taif
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MATERIAL SUBMITTAL / APPROVAL SHEET

<input checked="" type="checkbox"/> NEW SUBMITTAL	<input type="checkbox"/> RE-SUBMITTAL	SUBMITTAL DATE: 18/03/2023	SUBMITTAL NO.: MS-Mech-FF-10	REV.: 00
PURPOSE OF SUBMITTAL	<input checked="" type="checkbox"/> FOR APPROVAL	<input type="checkbox"/> FOR COMMENTS	<input type="checkbox"/> FOR INFORMATION	
DISCIPLINE:	<input checked="" type="checkbox"/> MECHANICAL	<input checked="" type="checkbox"/> Firefighting	<input type="checkbox"/> CIVIL	<input type="checkbox"/> ELECTRICAL
	<input type="checkbox"/> H. V. A. C.	<input type="checkbox"/> PLUMBING	<input type="checkbox"/> OTHERS...	<i>Specify:</i> <u>Fire Fighting</u>


MATERIAL NAME:	Kitchen Fire Suppression System	ORIGIN:	Turkey
BOQ. REFERENCE:		MANUFACTURER/SUPPLIER:	Hood Safer
SPECS. REF.:		SUPPLIER:	
DRAWING REF.:		MATERIAL DELIVERY PERIOD:	Stock
LOCATION:	Taif	MATERIAL REQUIRED AT SITE:	
QUANTITY:		SAMPLE ATTACHMENT:	
B. S. REFERENCE:		CERTIFICATE ATTACHMENT:	

WARRANTY FROM THE MANUFACTURER / SUPPLIER:

CONTRACTORS REMARKS (if any):

CONSULTANTS COMMENTS:

a) Follow manufacturers instructions for installation -

CONTRACTOR	CONSULTANT
NAME: Mohamed Rabea	NAME:
POSITION: Mechanical Engineer	POSITION: Consultant Engineer
SIGNATURE:	SIGNATURE:
DATE: 12/03/2023	DATE:
APPROVAL STATUS:	<input checked="" type="checkbox"/> A MATERIAL APPROVED <input checked="" type="checkbox"/> B APPROVED WITH COMMENTS <input type="checkbox"/> C MATERIAL REJECTED
RECEIVED BY: 	RECEIVED BY:
(CONSULTANT)	(CONTRACTOR)
SIGNATURE:	SIGNATURE:
DATE: March 22nd - 2023	DATE: