



REVEN®-O-MAT

# **Abridgment of REVEN® Ventilation and Filtering Systems for Commercial Large-Scale Kitchens 3.0**

## Technical data

### REVEN<sup>®</sup>-O-MAT fire-extinguishing system

## System description

### 10. Type REVEN<sup>®</sup>-O-MAT

#### REVEN<sup>®</sup>-O-MAT

The fire-extinguishing system REVEN<sup>®</sup>-O-Mat was developed → **for the automatic fire protection of deep fryers, fryers and grills in kitchens.**

In addition, REVEN<sup>®</sup>-O-Mat protects the extraction hoods and exhaust air ducts. The system consists essentially of an extinguishing agent container and an automatic trigger ANSUL AUTOMAN including the pertinent pressure reducer. The components are fitted in a single enclosure. Nozzles, detectors, solenoids and guide rolls are delivered as a complete unit.

#### REVEN<sup>®</sup>-O-Mat system ANSUL R102

The REVEN<sup>®</sup>-O-Mat System ANSUL R102 is triggered → **automatically**. You can also activate it via a manual trigger. The power supply of the equipment (gas or electricity) is shut off when the system is triggered. Integrated electrical filters, if fitted, are disabled. The fan for the exhaust air ducts should preferably remain in operation in order to transport the finely distributed extinguishing agent into the ducts. The REVEN<sup>®</sup>-O-Mat system fights fires by spraying the extinguishing agent ANSULEX onto all hazardous components, such as frying baths and grill or fryer tops, as well as filters, extraction hoods and exhaust air ducts in the relevant concentration. When the extinguishing agent ANSULEX comes in contact with burning grease, the agent reacts with the grease and produces a saponifying layer. The foam acts as an insulating layer between the hot grease and the ambient air and prevents re-ignition. In addition, flammable vapours cannot escape from the fat bath.



BMW Regensburg factory canteen 1



BMW Regensburg factory canteen 2

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As mentioned above, the extraction system should remain in operation after the REVEN®-O-MAT system has been triggered in order to transport and distribute the finely dispersed ANSULEX droplets into the duct system and minimize the smoke concentration inside the kitchen. In addition, the circulating air produces cooling effects in all areas.



External fire-extinguishing system as wall-mounted unit



Fire-extinguishing system integrated into the ventilating ceiling

#### Mechanical triggering:

The extinguishing agent tank contains 11.4 litres of ANSULEX-LpH and is integrated into the trigger unit AUTOMAN. An additional extinguishing agent tank can be added optionally if required. The tanks are fitted with a connection kit suitable for the propellant receptacle and the nozzle piping.

The trigger mechanism is controlled by a mechanical tripping system that triggers the automatic extinguishing process when an alarm is released via the solder or manual trigger.

#### Approved in the NA by:

Underwriters Laboratories®, Inc. (UL)

- UL Standard 1254
- UL Standard 300

Underwriters Laboratories® of Canada (ULC)

- ULC/ORD-C 1254.6

National Fire Protection Association (NFPA)

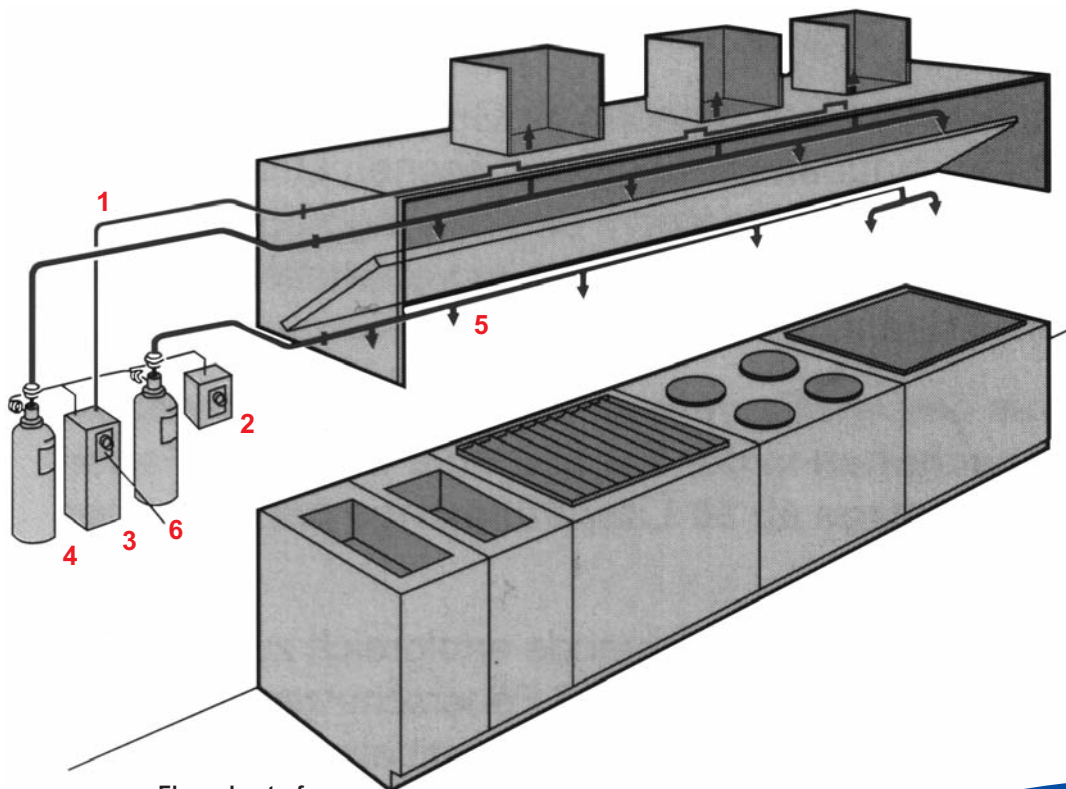
- NFPA 96
- NFPA 17A

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1. When a transmitter **1** or **2** is triggered automatically or manually, the propellant gas bottle in the mechanical trigger unit ANSUL-AUTOMAN **3** is tripped.
  2. The open propellant gas bottle releases nitrogen that flows to the extinguishing agent tanks **4**, which are installed in a well accessible location.
  3. The liquid extinguishing agent ANSULEX-LpH flows out and is distributed in a suitable manner by the extinguishing nozzle system **5**.
  4. The cooking equipment is switched off via a zero potential contact **6** (microswitch).
- 1** Trigger element with rope
  - 2** Manual trigger with rope (alternatively)
  - 3** Mechanical trigger unit AUTOMAN with propellant gas bottle
  - 4** Extinguishing agent tank
  - 5** Extinguishing nozzle system
  - 6** Zero potential contact (microswitch)



Flow sheet of a twin-tank fire-extinguishing system

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#### Design:

The size of the fire-extinguishing system (single-tank, twin-tank or multi-tank) depends on the facilities to be protected. We distinguish between the following protection types in this regard:

- Object protection: protection of the kitchen equipment (deep-fryers, fryers, cookers etc.)
- Duct protection: protection of the the exhaust air duct system in order to prevent flames adjacent building sections
- Total protection: includes object and duct protection

For systems that are tested and approved by the German Association of Property Insurers VDS, total protection is imperative. In order to ensure fire extinction, all extinguishing nozzles must be able to spray extinguishing agent for a defined period. Accordingly, only a limited number of extinguishing nozzles can be used in combination with the extinguishing agent tank due to the given capacity of 11.4 litres.



#### **N. B.:**

The design of a fire-extinguishing system should only be confined to trained technical personnel in order to ensure that all important components are protected and the system is dimensioned according to the requirements. Please contact the competent REVEN® team of technicians for the planning of your fire-fighting system.

#### Components - piping:

The following types of piping are distinguished in connection with the fire-extinguishing system REVEN-O-MAT ANSUL R102:

1. **Manifold piping**
2. **Duct nozzle piping**
3. **Hood nozzle piping**
4. **Object protection piping**

#### 1. **Manifold piping:**

The manifold piping is the pipeline from the outlet of the extinguishing agent tank to the last branch of the nozzle piping. It includes all installed fittings with the exception of the T-connectors and bends for the connection of the nozzle pipes.

The minimum distance between the outlet of the extinguishing agent tank and the first nozzle should be 1.8 m approximately.

**Material: stainless steel**

#### 2. **Duct nozzle piping:**

The duct nozzle piping comprises all pipelines from the manifold pipes to the duct nozzles. It includes all installed fittings and T-connectors as well as the branch fittings of the duct nozzle pipes.

**Material: stainless steel**

#### 3. **Hood nozzle piping:**

The hood nozzle piping comprises all pipelines from the manifold pipes to the hood nozzles. It includes all installed fittings and T-connectors as well as the branch fittings of the hood nozzle pipes.

**Material: stainless steel**

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#### 4. Object protection piping:

The object protection piping comprises all pipelines from the manifold pipes to the object protection nozzles. It includes all installed fittings and T-connectors as well as the branch fittings of the object protection nozzles.

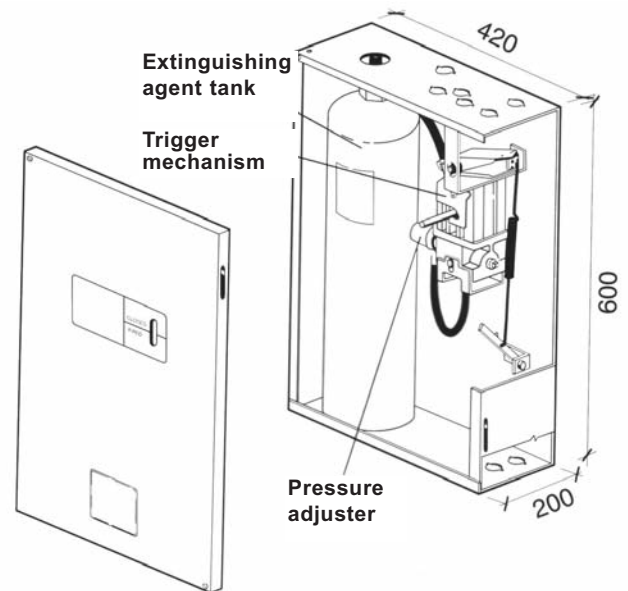
**Material: stainless steel**

#### AUTOMAN trigger unit:

The trigger system with pressure adjustment consists of the AUTOMAN trigger mechanism with pressure reducer, the extinguishing agent tank, the pressure hose and all required connecting pieces. The pressure reducer produces a constant pressure of 7.0 bars in the extinguishing agent tank when the system is triggered. The system is either triggered automatically by soldered struts or via a manual trigger.

A zero potential microswitch (double-pole, double-throw) fitted to the trigger mechanism shuts off the energy supply of the relevant kitchen equipment and transmits the alarm to the fire alarm or control centre.

The trigger mechanism is fitted into an enclosure with a size of 600 x 420 x 200 mm and must be mounted to a straight vertical surface.



**AUTOMAN trigger unit**

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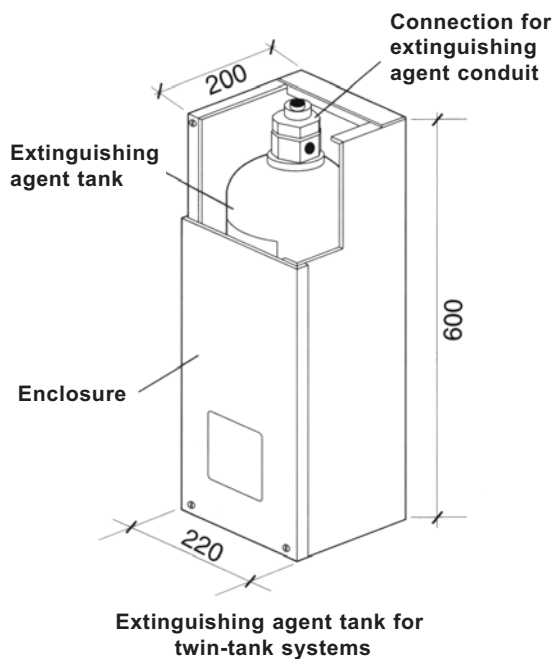
#### Extinguishing agent tank:

Capacity:	11.4 l
Tank diameter:	178 mm
Material:	stainless steel
Operating pressure:	6.89 bar
Test pressure:	20.86 bar
Bursting pressure:	41.37 bar

#### Extinguishing nozzles:

Each nozzle is designed in such manner that it sprays the liquid extinguishing agent evenly onto the surfaces or over the spaces to be protected. Even if all nozzles look similar, they are designed **for different applications** and should only be used as specified.

→ Each nozzle is marked with an engraved identifier.



BMW Regensburg factory canteen 1

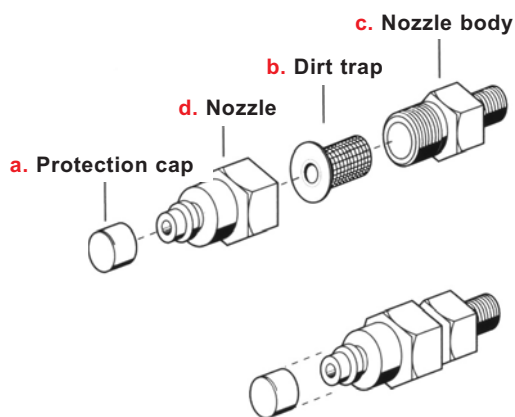
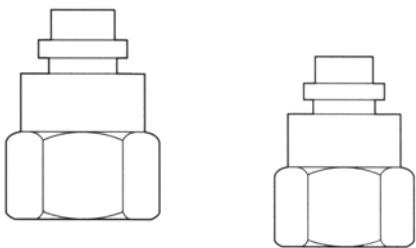
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#### The nozzle includes four parts:

- a. The protection cap prevents deposits at the bore that would otherwise accumulate during the operation of fryers, deep-fryers and grills. It is blown off by the pressure generated after the activation of the REVEN<sup>®</sup>-O-Mat system.
- b. The dirt trap prevents contamination of the nozzle.
- c. The nozzle body constitutes the enclosure of the dirt trap, connection thread 3/8 inch.
- d. The nozzle is made of brass.



#### Extinguishing nozzles:

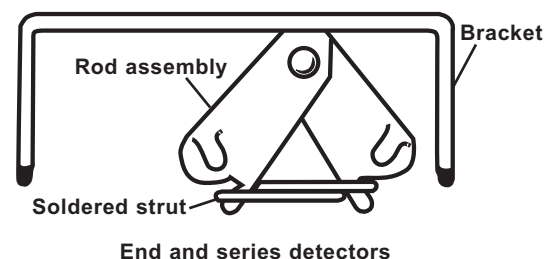
The signal cable comprises the trigger rope with protective conduit, deflector rolls and detectors.

The detectors are soldered struts incorporated in the trigger rope that release the rope tension at a particular temperature thereby activating the fire-extinguishing system. The trigger rope is protected by a conduit and guided via deflection rolls at the pipe bends.

#### We distinguish between two types of detectors:

end detectors and series detectors. They are identical and differ only in regard to their installation.

1. The end detector is located at the end of the trigger rope.
2. The series detector is installed between the trigger mechanism AUTOMAN and the end detector. You can install up to 15 detectors (14 series and 1 end detector) in one detector line.





REVEN® Air Cleaners · phone: +49 (0) 7042 - 373 - 0

**Ugh,  
the kitchen  
is on fire!  
Who is liable?**

Be on the safe side:  
[www.reven.de/kuechenbrand](http://www.reven.de/kuechenbrand)

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#### Soldered struts:

Soldered struts are made of metal including eutectic solders that melt at particular temperatures and trigger the system.

The selection of the solder depends on the heat emission and temperature of the kitchen equipment.



#### N. B.:

Make sure that you install the soldered struts behind the grease filters into the extraction hoods!

#### Liquid fire-extinguishing systems for equipment protection under ventilating ceilings and cooker extraction hoods:

The extinguishing system is installed during or after the assembly of the ventilating ceiling or extraction hoods and the kitchen equipment.

The AUTOMAN trigger unit is fitted to the front of the cooker extraction hood or in another nearby location. The nozzles and trigger ropes are installed inside the cooker extraction hoods.

The extinguishing system is triggered mechanically via soldered struts or a separate manual trigger.

When the extinguishing system is triggered, the zero potential snap switch incorporated in the AUTOMAN trigger unit must shut off the power supply of the individual pieces of equipment such as cookers, grills, deep-fryers, fryers etc. The shut-off facility is to be installed by the customer.

→ **We only give a guarantee if a shut-off system is installed!**

#### The customer must provide for the following:

The cabling between the snap switch and existing switch cabinet of the kitchen (NYM 3 x 1.5). A cable (e.g. IY / ST / 2 x 2 x 0.8) can be installed optionally for the transmission of the alarm to an existing fire alarm centre.

→ **We recommend the installation of an alarm horn by the customer to alert the kitchen personnel acoustically when the extinguishing system has been triggered.**

→ **The exhaust air fans remain in operation during the extinguishing process. The supply air must be shut off.**



Guardian

## Technical data

### Guardian fire-extinguishing system

## System description

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#### **Everybody has had one – a mishap in the kitchen!**

The overcooked milk or burnt steak are among the less dangerous events in contrast to the possible consequences of a cooking plate that has been left on, or a shooting flame. In most cases, everyone gets off lightly. Reports of fire brigades prove, however, that fires in private homes occur more often than one might think and typically break out in the kitchen.

#### **REVEN® shows you how to protect yourself:**

Our tried and tested self-triggering fire-extinguishing system Guardian offers effective preventive fire protection. The extinguishing system with low space requirements is optimally matched to the dimensions of built-in kitchens and is suitable for integration into cooker extraction hoods.

The liquid extinguishing agent of the Guardian system satisfies three important requirements:

1. The generated foam rapidly inhibits the oxygen supply and suffocates the flames.
2. Due to evaporation, the fire source is cooled to below the ignition point.
3. After the fire has been extinguished, you can easily wipe off the remaining extinguishing agent from the surfaces without any residue.

You can benefit from our long years of experience in commercial kitchen fire protection in your own home too.

#### **Our advantage for your safety.**

The US forces in Europe realized the benefits of this technology a long time ago and their members also use these systems in their private kitchens.

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### Guardian fire-extinguishing system

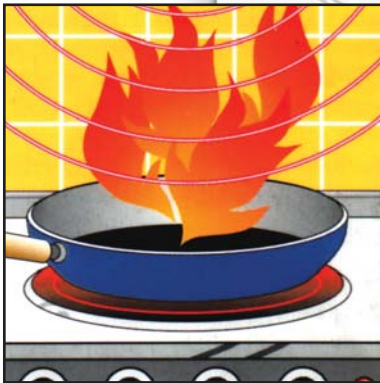
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How does the Guardian system work?

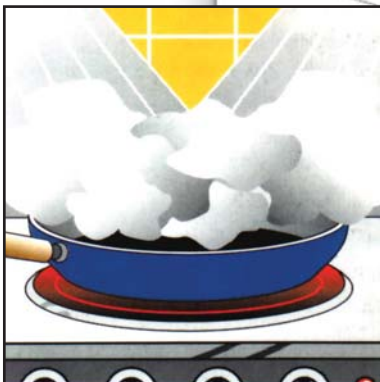
1. Fire breaks out due to burning fat, for instance.



2. The sensor of the system detects the fire.



3. The extinguishing system is triggered and sprays the liquid extinguishing agent onto the fire source.



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### Guardian fire-extinguishing system

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### Ordering and tender text for the fire-extinguishing system type Guardian:

Integrated fire-extinguishing system for private kitchen extraction hoods in accordance with UL/NFPA/USAF/DOD regulations including power supply shut-off, type Guardian.

The extinguishing system and extinguishing agent are approved by the UL (Underwriters Laboratories, Inc.)

The extinguishing agent is approved by the official German testing institute for fire-extinguishing agents.

### System components including:

- pressure tank with rising pipe
- brass valve
- pressure gauge with scale
- tank holder
- microswitch and cable-tensioning nut
- special extinguishing agent; the tank is located outside the extraction hood

### 1. Extinguishing agent distributing pipe network:

The piping comprises steel or stainless steel pipes a flexible connection hose and a nozzle holder for hoods of 600 mm or 800 mm.

### 2. Two high-pressure spray nozzles:

Made of brass, conical spray angle with 2 x 45° suitable for installation above the cooking equipment and protection of the entire cooking surface.

#### Optionally:

Flat sprayer for the separation of the hood filters from the fan piping in order to prevent flames spreading to the exhaust pipe.

### 3. Soldered strut trigger comprising:

- steel rope
- angular rollers
- S-hooks
- two soldered struts (trigger temperature at 74 °C) including fasteners and angle brackets

### 4. Power-supply shut-off unit:

Manufactured in accordance with VDE guidelines, IP 43 protection, complete unit including the cabling between the zero potential microswitch and the power supply shut-off unit.

### 5. Cable kit:

Suitable for the power supply of the shut-off unit as well as the control of the solenoid valve of gas cookers.

### 6. Reset switch:

Zero potential contact for the control of an audible or visible alarm signal and the control light.

### Assembly:

The fire-extinguishing system is installed into the cooker extraction hood and the hood box above.

Assembly of the hood box and the hood including all accessories, fasteners, gaskets and small parts.

Delivery of a completely assembled compact unit.

Commissioning and handover of a system ready for operation.