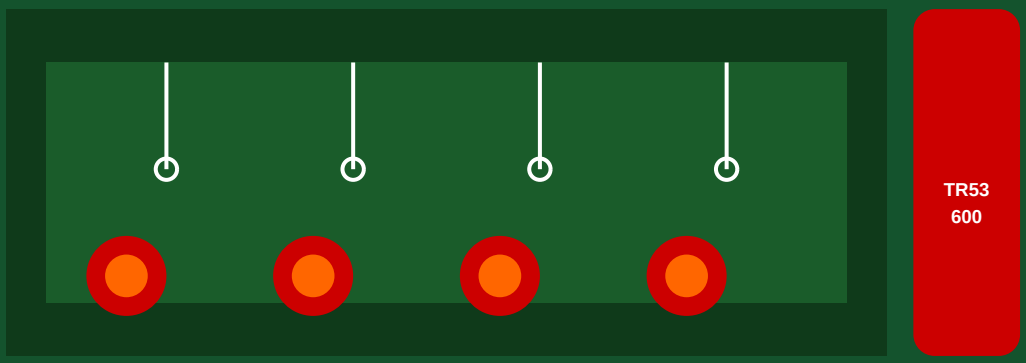
FIRE GROUP GEORGIA

"fire protection excellence, flexibility custom-made"

KITCHEN HOOD FIRE EXTINGUISHING SYSTEMS

MICRO SUPPRESSION SYSTEMS — CATALOGUE



TR53
600

Gost-R | CE | ISO 9001 | TSE

UL | FM | VdS | EN 54

KEY APPLICATIONS

- Restaurants
- Hotel Kitchens
- Industrial Kitchens
- Fast Food / Takeaway
- School Canteens
- Hospital Catering
- Food Processing
- Ship Galleys

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EDITION 1 - 2024

KITCHEN HOOD FIRE EXTINGUISHING SYSTEMS — OVERVIEW

Protection of the Cooking Area from Fire. Fire Group Georgia kitchen hood suppression systems provide effective, high-performance automatic fire prevention and suppression for all commercial and industrial cooking environments. Systems are fully certified: **Gost-R, CE, ISO 9001, TSE, UL, FM, VdS, EN 54, NFPA.**

How the System Works

The kitchen hood fire suppression system is an automatic wet chemical system installed directly within the cooking hood and duct. Metal heat detectors (fusible links) sense the temperature. When a fire occurs, the fusible link melts and triggers the mechanical control head on the cylinder, which discharges potassium carbonate-based liquid chemical through nozzles positioned directly over the cooking equipment. Simultaneously, the gas supply is automatically shut off via the gas shut-off valve.

System Advantages

- Fully automatic — no human intervention required; extinguishes fire at the source
- Potassium carbonate liquid agent does not damage the cooking area or equipment
- Simultaneous automatic gas shut-off — prevents re-ignition
- Expandable coverage — system can be extended after initial installation
- Only 5 nozzle types cover all installation configurations
- Full cone spray nozzles for maximum coverage of cooking surfaces
- Nozzle height range: 254 mm to 1270 mm above cooking equipment
- Chrome protective caps prevent grease fouling of nozzle orifices
- Simple pipe layout rules — easy installation and commissioning
- Supports 1/4 inch to 3/4 inch pipe combinations in a single system
- Rear shelf protection included in system design
- 12-year shelf life for liquid chemical agent

EXTINGUISHER CYLINDERS — TR53 SERIES

All TR53 cylinders are manufactured from seamless steel with continuous-pressure design. Each cylinder features an easy-read manometer, stainless chrome valves, a protective valve cap, and is pressurised with dry nitrogen. Available in four sizes: 200, 300, 460 and 600.

Model	Agent Fill	Flow Points	Weight (kg)	Dim A (mm)	Dim B (mm)	Bracket
TR53-200	7.6 kg potassium carbonate	5	19	20	56	MB-15
TR53-300	12 kg potassium carbonate	10	24	20	66	MB-15
TR53-460	17.4 kg potassium carbonate	15	37.75	24.5	62	MB-15
TR53-600	22.7 kg potassium carbonate	20	49	24.5	97	MB-1

Cylinder Technical Specifications (all models)

Body material	Seamless steel — seamless construction
Valves	Stainless chrome, corrosion-resistant
Pressurisation	Dry nitrogen
Working temperature	0 degC to +49 degC
Working pressure	15.5 bar (225 PSI) at 20 degC
Test pressure	46.5 bar (675 PSI)
Certifications	CE, Gost-R, ISO 9001, TSE, UL
Indicator	Easy-read manometer on each cylinder

DISCHARGE NOZZLES

All nozzles are brass or chrome-plated with the nozzle type and flow rate marked on the sprayer section. Each nozzle includes a strainer/filter to prevent clogging. A protective metal cap covers each nozzle and opens automatically during discharge. Length: 45 mm. Bright metallic grey finish.

2D TYPE NOZZLE — Chimney/Duct Only (2 Flow)

- Used exclusively in chimney/duct applications
- 2 flow points — full cone spray pattern
- Brass or chrome-plated body, chrome-plated sprayer section
- Built-in strainer to prevent blockage from grease deposits
- Auto-opening protective metal cap during discharge
- Length: 45 mm | Finish: bright metallic grey

1H TYPE NOZZLE — Filter Applications (1 Flow)

- Used exclusively in filter/plenum applications
- 1 flow point — targeted spray for filter protection
- Chrome-plated nozzle and sprayer section
- Strainer prevents orifice clogging
- Protective metal cap — opens automatically on discharge
- Length: 45 mm | Finish: bright metallic grey

1L TYPE NOZZLE — General Use except Filter (1 Flow)

- General-purpose 1-flow nozzle for most cooking surface applications
- Suitable for: fryers, griddles, woks, range tops
- NOT for use in filter positions
- Chrome-plated construction with anti-clog strainer
- Protective metal cap — auto-opens on discharge
- Length: 45 mm | Finish: bright metallic grey

2L TYPE NOZZLE — General Use except Chimney (2 Flow)

- 2-flow general-purpose nozzle — all areas except chimney/duct
- Wider coverage: ideal for large flat griddles and range surfaces
- NOT for chimney/duct use — use 2D type instead
- Chrome-plated, anti-clog strainer, auto-open protective cap
- Length: 45 mm | Finish: bright metallic grey

2H TYPE NOZZLE — General Use except Chimney (2 Flow)

- 2-flow high-proximity nozzle for all areas except chimney/duct
- Designed for high-proximity (low mounting height) applications
- Coverage height range: 254 mm to 1270 mm above appliance
- Chrome-plated construction, anti-clog strainer
- Auto-opening metal cap on discharge
- Length: 45 mm | Finish: bright metallic grey

DETECTION & CONTROL COMPONENTS

METAL HEAT DETECTOR — FUSIBLE LINK

- Consists of sensing wire connected to soluble metal fuse detectors
- Auto-fusible metal link: melts and splits when fire temperature reached
- When fusible link melts, the sensing wire releases — activating the discharge
- Material: tin-lead alloy (lead-free options available)
- UL approved
- Available in three temperature ratings: 280 F / 360 F / 450 F
- 280 F (138 degC) — standard commercial kitchens
- 360 F (182 degC) — high-temperature cooking environments
- 450 F (232 degC) — extreme heat locations (char-broilers, deep fat fryers)

MECHANICAL CONTROL HEAD

- Made of iron plate — robust, corrosion-resistant construction
- Easy installation design — mounts directly to cylinder outlet
- Multiple activation options: fusible link wire, heat detector, OR manual discharge button
- Controls the operation of the entire system (all cylinders connected in series)
- No separate discharge lever on the unit — integrated control mechanism
- Triggers cylinder valve opening and agent discharge on activation

MANUAL DISCHARGE STATION

- Stainless steel internal mechanism — aluminium body
- Exterior pull handle for manual system activation
- Located in accessible position outside the cooking area
- Bright metallic grey colour
- Used for manual activation in emergency or testing
- Compatible with all TR53 cylinder systems

SYSTEM ACCESSORIES

STAINLESS STEEL FLEXIBLE HOSES

- Stainless steel wire braided flexible hoses for equipment connections
- Used to interconnect various system components and allow movement
- Available sizes: 16 in (406 mm), 24 in (610 mm), 34 in (864 mm), 40 in (1016 mm)
- High-pressure rated — compatible with system working pressure
- Corrosion-resistant stainless construction for kitchen environment

ROLLER BRACKET

- Aluminium construction with internal bearing mechanism
- Guides the detection wire through changes of direction
- Allows smooth wire movement through the system
- Hole diameter: 18 mm
- Metallic grey colour
- Used wherever the detection wire changes direction

METAL HEAT DETECTION CONNECTION KIT

- Used to connect the fusible link (melting wire) to the detection system
- Stainless steel — heat-resistant and corrosion-resistant
- Ensures reliable mechanical connection of detection wire
- Supplied as a complete connection kit with all required fittings

CO2 CARTRIDGE

- Carbon dioxide-based trigger cartridge — initiates system operation
- Seamless steel construction
- Contains 16 grams of carbon dioxide
- Total cartridge weight: 58.8 grams
- Cartridge length: 8.8 cm
- Yellow colour for easy identification
- Assembles into the mechanical control head

GAS SHUT-OFF VALVES & SYSTEM CONTROLS

GAS SHUT-OFF VALVE

- Automatically disconnects gas supply to cooking appliances when system activates
- Available in mechanical and electrical types
- Open/closed position indicator on exterior face
- Body: aluminium | Internal parts: stainless steel
- Colour: metallic grey or red
- Prevents re-ignition by cutting fuel supply at moment of suppression
- Can also be connected to building fire alarm for remote shutdown

FIRE EXTINGUISHER CYLINDER CABINETS

- Custom-manufactured enclosures for TR53 cylinder protection and storage
- Suitable for: TR53-200, TR53-300, TR53-460, TR53-600
- Made from iron sheet — robust construction
- Channel-shaped profile — black finish
- Various sizes available to accommodate single or multiple cylinders
- Can be wall-mounted or floor-standing

MICRO SWITCHES

- For use with electric gas valves, alarms, contactors and indicator lights
- Designed to shut off electrical power to cooking equipment on system activation
- Also activates system alarm and notification circuits
- Compatible with standard building electrical systems
- Turns off other connected electrical appliances simultaneously
- Supplied as part of system electrical interface package

EXTINGUISHING AGENT — POTASSIUM CARBONATE LIQUID CHEMICAL

The TR53 system uses a **potassium carbonate-based liquid chemical agent**. This agent is specifically designed for grease fires (Class F / Class K). It does not damage the cooking area or equipment after discharge. The liquid saponifies cooking oils and fats, rapidly knocking down the fire and preventing re-ignition.

Chemical Agent Specifications

Base agent	Potassium carbonate (K2CO3) solution
Fire class	Class F (cooking oils and fats) / Class K
Appearance	Clear, colourless liquid
Shelf life	12 years
Freezing point	-40 degC
Deviation index	1.39 – 1.41
Specific weight	1.32 – 1.52
Kinematic viscosity	3.2 cSt at 25 degC
pH	12.5 – 13.5
Damage to equipment	None — does not harm cooking surfaces or equipment

Action Mechanism

Detection: Metal fusible link melts at set temperature (280 F / 360 F / 450 F).

Trigger: Detection wire releases; mechanical control head activates cylinder valve.

Gas cutoff: Gas shut-off valve simultaneously closes — fuel supply cut.

Discharge: Potassium carbonate liquid is discharged via nozzles over cooking equipment.

Suppression: Agent saponifies cooking oil, forms protective layer, prevents re-ignition.

Reset: Replace CO2 cartridge, fusible links, recharge cylinder. System ready.

MICRO SUPPRESSION SYSTEMS — ELECTRICAL FIRE SOLUTIONS

Micro suppression systems are cost-effective, standalone automatic fire suppression systems for critical equipment and electronic systems. They use Linear Pneumatic Heat Sensors (detection tubing) and activate automatically at the fire source — before the fire spreads to other systems or the building, and without requiring fire brigade intervention or sprinkler activation.

Micro System Advantages

- Activates at fire source — suppresses fire before it spreads
- Selective activation: only the affected enclosure suppresses — others keep running
- Fewer components than conventional systems — higher reliability, lower cost
- Eco-friendly — smaller system, less agent, less waste
- Safe for occupied areas — no oxygen displacement
- No electrical power supply, battery backup or control panel required
- Fully effective in areas with no human access
- Fast, efficient and automatic — direct intervention at the hazard source
- Easy to maintain and learn — simple operating principle
- Damage limited to protected zone only — prevents spread to adjacent systems

Common Electrical Fire Sources Addressed

Fire Sources

- Motor control centres
- Electrical distribution panels
- Control cabinets
- Cable bundles / cable trays
- Power conduits / busbars
- UPS units
- Transformers

Common Fault Types

- Wire fatigue / insulation failure
- Improper installation
- Overloaded circuits
- Equipment faults
- Faulty electrical connections
- Short circuits
- Power supply failures
- Power line surges

SYSTEM APPLICATIONS

Fire Group Georgia kitchen hood and micro suppression systems are suitable for a comprehensive range of commercial, industrial and vehicle applications.

Commercial Cooking Environments

- Restaurants, cafes, bistros and bars
- Hotel kitchens and banqueting facilities
- Fast food outlets and takeaway kitchens
- School, university and hospital canteens
- Food processing plants and industrial kitchens
- Ship galleys and offshore catering facilities

Industrial & Manufacturing

- Dust collection ducts and systems
- Production and process equipment
- Wind turbines (nacelle and hub)
- Heavy lifting equipment
- Agricultural and forestry machinery
- Heavy industrial plant and equipment

Facilities & Infrastructure

- Airports — ground support equipment
- Electrical utility substations
- Forklifts and warehouse equipment
- Mining equipment and machinery
- Port / harbour security equipment
- Pharmaceutical manufacturing
- Water treatment facilities

Information & Technology

- Computer / data processing rooms
- Server rooms and data centres
- Telecommunications equipment rooms
- EDM machines and CNC equipment
- Laboratory and fume cupboard equipment
- Electrical control rooms

Vehicles & Transport

- Buses, coaches and minibuses
- Cash-in-transit vehicles
- Public transport systems
- Military vehicles and airport fire tenders
- Automobiles (engine compartments)
- Heavy goods vehicles

Hazardous Storage

- Dangerous goods storage areas
- Flammable liquid stores
- Chemical storage cabinets
- Archive rooms and document stores
- Battery storage and charging areas
- Paint spray booths

CONTACT & COMPANY INFORMATION

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Fire Group Georgia reserves the right to make technical changes without prior notice. All system designs must be verified by a qualified fire suppression engineer. Systems supplied with full installation, commissioning and maintenance documentation.

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