

GRUPO
KOMTES

MINING

 **SIEX**

AG ●●●●
SPRINKLER

Koneba®

Komttech 

 
Macoin Ribõ


Tecno Envases



In mining, especially underground, there is a significant risk of fire and explosion due to the abundance of sources of ignition due to the presence of flammable gases and high concentrations of dust, fumes and fuel.



The mining industry involves, as an extraction and production activity, both obtaining ore or raw material from the earth and subsequently processing it, using dedicated facilities and intermediate storage methods, until the output is transferred to other industries. Primary products are very diverse and can be divided, roughly, into metals and non-metals (such as building materials or ornamental products).

Whether open pit or underground, mining is an activity of great danger with a high death rate per accident, making it one of the activities most affected by workplace accidents. Its inherent risk must be mitigated as far as possible with the techniques and steps needed to anticipate danger, design prevention and control mechanisms and, finally, to ensure proper protection and personnel rescue mechanisms are in place.

At Komtes Group, fire protection is addressed by analyzing the particular characteristics of protection needs in these extreme environments, the different regulations applicable in each case, and the latest technologies for fire suppression in adverse situations, backed by our experience of over 50



years in the business, and by the many prestigious international approvals and certifications that our equipment has received.

The protection of the miners is especially critical, and very early, preventive and decisive action, a mandatory requirement.

FIRE OUTBREAKS	ACTIVE MEASURES		EXTINCIÓN DEL FOCO	
	KOMTTECH <i>detection</i>			
	MACOIN/RIBÓ <i>manual methods</i>			
	AG FIRE SPRINKLER <i>structural protection</i>	Water spray systems to protect conveyors, cable tunnels, tanks, transformers, pipe racks and structural protection.		Foam Systems for hydrocarbon fire protection
	MACOIN / AG FIRE SPRINKLER / <i>firefighters</i>			

GRUPO **KOMTES**

The KOMTES Group's extensive experience allows us to be intimately aware of and effectively address the specific fire hazards related to mining operations, both during extraction and processing operations.



**SPECIFIC INDUSTRY
KNOWLEDGE**

+

**MISSION-SPECIFIC
SYSTEMS**

=

**PROTECTION
TAILORED TO
YOUR NEEDS**

SOCIAL CHALLENGE



KOMTES offers:

PROTECTION OF OCCUPANTS FROM FIRE, SMOKE, EXPLOSION AND TOXIC PRODUCTS

Fire control products designed for mining are fast-acting and safe; the aim is always to avoid as much direct and indirect damage as possible from fire: fast flame suppression, smoke extraction, or care with regards to chemical compatibility

HIGH ACCIDENT RATE

KOMTES acts:

This type of infrastructure has a notable profile in relation to various governmental and social concerns, leading to the high media impact of accidents, so that reliable safety is a major goal.

FUNCTIONAL CHALLENGE



KOMTES offers:

COMPACT AND TRANSPORTABLE SYSTEMS

The high efficiency of the equipment allows for minimal equipment designs that are easy to transfer from one location to the next, featuring optimum agent use, or for easy use in places where handling is difficult.

MOVING EXTRACTION POINTS IN TIGHT SPACES

KOMTES acts:

As excavations progress, the danger of fire shifts to locations of very limited access, where every square meter affects production.

We offer expert solutions to specific challenges thanks to our specialized equipment.

LOGISTICAL CHALLENGE



KOMTES offers:

SELF-SUFFICIENCY AND BACKUP EQUIPMENT

The equipment comes ready for complete installation, including the option of self-sufficient systems without any easements to external inputs, in order to ensure proper system performance under any circumstances.

ACCESSIBILITY AND SUPPLY LIMITATIONS

KOMTES acts:

A remote location requires careful planning for the installation, but installed in such a way that its use, maintenance and replacement does not pose a challenge.

SECURITY CHALLENGE



KOMTES offers:

ATEX COMPONENTS AND EARLY EXTINCTION

From specialized early detection, to the use of explosion-proof equipment, to control of toxic emissions, these systems allow greatly improved response times and optimal conditions for the evacuation of the miners.

DANGEROUS ATMOSPHERES AND HAZARDOUS ACTIVITIES

KOMTES acts:

Hazardous products (such as mineral dust, gases, fuels, chemicals, industrial electrical installations, etc.), subject to multiple potential sources of ignition (use of explosives, machine tools,...) make the use of specifically designed fire prevention components essential.

MANUAL METHODS

Should a fire occur, manual protection measures enable miners to attack the fire source during its initial phase, eliminating or reducing potential damage.

The semi-rigid 25mm and 33 mm equipped fire hydrant boxes from **MACOIN / TECNOENVASES** do not be extended for use and are easy to handle, thus **facilitating firefighting in confined spaces**, such as distribution chambers.

Special extinguishers are a suitable and easy-to-use portable means: from manual fire extinguishers placed in the cockpit of drilling or extraction heavy machinery, to the portable skids for greater autonomy in fire control interventions. These can be loaded with

the most appropriate agent, depending on requirements, with water being the most adequate for personnel, facilitating fire extinction without affecting visibility or causing undue alarm.

SIEX W-MIST water mist skid units serve a similar function, but enjoy higher capacity and autonomy, capable of creating a haze of high pressure water that cools the fire source while acting as a heat shield. This blocks the heat radiation from the operator and washes out fumes from the air, making evacuation quicker and safer.



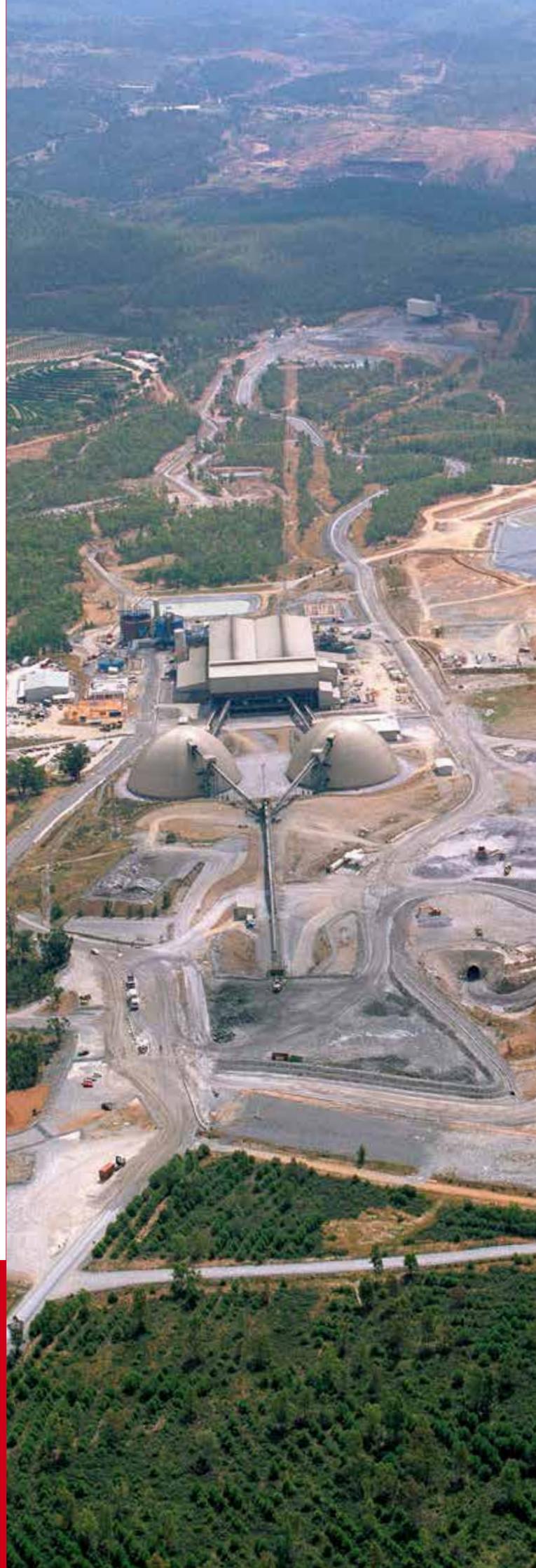
DETECTION

Detection and alarm systems are essential for rapid and immediate response, as appropriate in each case, to prevent the amplifier effect of tunnels and confined spaces, where conditions for life are quickly threatened by the sudden rise in temperature and fumes, compounded by poor ventilation and cooling conditions.

For this purpose **KOMTECH** offers a wide range of smoke point, flame point and early warning detectors, such as laser barriers, and extraction systems for large processing plants. Finally, in the case of conveyor belts, where the fact that the source is moving fast with plenty of raw and waste materials, the most effective detection is thermal linear, distributed along the entire belt, including the motor area.

In any case, the control center can be governed from a distance to activate the optical signals, acoustic alarms and prerecorded messages that facilitate evacuation, while informing operating personnel and alerting professional emergency services.

For vehicles, **SIEX** provides thermal-mechanical or pneumatic heat-detectors, with autonomous action in the face of pockets of high temperature in the large engine, brake and hydraulic systems of the heavy vehicles used in the mining sector.



FIXED PROTECTION SYSTEMS

The most effective medium for extinguishing fires in mining facilities is generally water. **In strip mines or processing plants, water supply** supposes no great technical complexity. However, underground operations or remote locations make conventional installations unviable. Locations at high altitude or great distance, or in the middle of a hostile natural environment, prevent supplying networks with sufficient capacity. In addition, other hazards, such as floods, leaks, landslides or weakening of firm ground, and so on, must be taken into account.

For the extraction phase, AG FIRE SPRINKLER protection allows normal or extended coverage for light and ordinary hazards in common areas and at distribution points, and

water spray nozzles for conveyor belts, transformers, cable tunnels, reservoirs, pipe racks and even for structural protection.

However, for a minimum and optimal use of water, SIEX advocates the use of water mist. Using only 10% of the water used by a sprinkler network, and backed by numerous approvals for each application, it is the ideal solution for remote plants and moving excavations:

Its configuration in the form of self-pressurized batteries makes it easy to disassemble and transport to new sites as work progresses. Once activated, it extinguishes the source while washing out fumes and dust, thus facilitating evacuation. Its minimal consumption and ease of recharge (water and nitrogen) make

maintenance easy at any location in the world.

The mist produced enjoys maximum cooling capacity and remains long in suspension, cooling the area. This minimizes the tunnel effect, which makes fire so dangerous in these locations. As it is a versatile agent, it also can be used on electrical equipment fires, such as transformers, generators, large-capacity air extractors, and/or cable or personnel tunnels, thanks to the various sprinklers specifically approved for each such use.



Meanwhile, in raw material processing plants, prevention focuses on storage areas, conveyor belts and machinery.

AG FIRE SPRINKLER offers water spray deluge systems for conveyor belts. These belts can be especially complex, as they involve transporting large amounts of combustible material among production lines: ventilation, movement and belt lubricants can all feed and fuel the source, generating fast-developing fires. For that reason, action is undertaken in a massive fashion over the entire affected area, thanks to high or medium-speed nozzles to deter contagion.

For the protection of non-storage water-reactive materials, **AG FIRE SPRINKLERS** offers a full range of automatic sprinkler systems and high expansion foam.

In addition, **SIEX** provides dry chemical equipment of different compositions according to hazard level for the **storage of reagents**, suitable in cases of water shortage or chemical incompatibility.

Dry chemical systems are also used in **vehicle protection** and for general local application, both indoors and outdoors.

Mining vehicles represent special risks: bulldozers, excavators, earthmovers, dumpers and loaders, etc., are all heavy vehicles, used during long shifts in extreme conditions, with hot surfaces in close proximity to lubrication systems, oils, batteries and fuel tanks. Coupled with the fact that they carry large loads

and accumulate waste material, they become a potential source of fire in motion.

As a complementary measure to manual methods, they can be further protected with automatic and autonomous systems such as the **SIEX IND-V**, specifically designed for commercial and industrial vehicles. These systems consist of a compact, self-pressurized, BC-type dry chemical cylinders which allow for activation via thermal, pneumatic, electronic, manual, or remote-manual detection, or combinations thereof, for maximum tailoring to the size and needs of the protected vehicle.

For processing plants, **W-MIST water mist pumping groups** are versatile and offer great coverage. These cover the entire area with their high capacity pumping ability for use over greater distances with high flow. Our large selection of certified diffusors as well as control, routing and security valves, allow for ideal performance for each type of hazard automatically, 24/7/365.

In any case, under extreme climates water networks can be kept dry to prevent freezing. Similarly, in the case of minerals that are sensitive to water, the installation can be fast-acting, combining the effectiveness of automatic sprinklers with the reliability of an electrical detection system to provide double security and prevent accidental discharges.

SIEX also carries ATEX components for hazardous or explosive atmospheres, as well as inerting agents for silos or conduits (carbon dioxide at low pressure)





The mining industry is a particularly dangerous one, requiring specialized and highly versatile equipment capable of working in adverse conditions, with strict design and performance specifications, as well as extra capacity for added autonomy and protection of workers.

These specialized solutions are summarized in the following table:



PROTECTION AREA		Komtttech			Koneba	
REMOVAL	Distribution points	Smoke detection point	Semi-rigid equipped fire hydrant boxes	Normal and extended coverage sprinklers	Partitioning	Water mist batteries/ pumping groups
	Galleries	Thermal cable	Water extinguishers	Water spray		Water mist pumps
	Lifts	Timely detection of smoke and heat		Water spray (outdoor)		-
	Transformers and generators		Dry chemical skid units and foam premix			
	Cable tunnels	Thermal cable	Manual fire extinguishers	-	-	Fixed dry chemical system
	Heavy machinery and vehicles	Thermal detection, fuse elements				
PROCESSING	Conveyor belts	Infrared detection Thermal linear	-	Water mist	Partitioning	Skids, fixed units and automatic water mist systems
	Chemical warehouses	Laser barriers and extraction	Portable skid units	Water spray and foam systems	TCHSES	Dry chemical powder (water mist, CO ₂)
	Processing machinery	Smoke and flame detectors	Hydrants Equipment housings Special nozzles	Water mist	Partitioning	CO ₂ , water mist
	Control and monitoring rooms	Spot fume detection via aspiration	Manual water extinguishers, CO ₂	Normal and extended coverage sprinklers	-	FM-200, inert gases
	General storage	Laser Barriers Extraction	Portable skid units Equipped fire hydrant boxes of 45mm and 70mm, with hoses of up to 60m	ESFR, CMDA or CMSA sprinklers.	TCHSES	-
	Loading and transport	Infrared		Normal and extended coverage sprinklers	-	Chemical powder, water mist

DETECTION SYSTEMS

- OPTIMAX
- PREMIUM

INTELLIGENT

Analog and algorithmic systems with voice evacuation.

CONVENTIONAL

Option for remote access via TCP/IP for system management.

SPECIALTY SYSTEMS

- HIGH SENSITIVITY LASER DETECTION VIA ASPIRATION
- LINEAR THERMAL DETECTION VIA HOT-MELT TECHNOLOGY OR FIBER OPTICS
- SPECIAL TEMPERATURE PROBES
- THERMO GRAPHIC CAMERAS
- ASSORTED ATMOSPHERES

AUTOMATIC PROTECTION SYSTEMS

SPRINKLERS

- SPRINKLERS
- VALVE CONTROL SYSTEMS
- VALVES

FOAM

- CONTROL VALVES
- STORAGE TANKS
- FOAM PROPORTIONERS
- PROTECTION OF FLAMMABLE LIQUID STORAGE TANKS AND TROUGHS
- GENERATORS
- MONITORS

WATER SPRAY

- HIGH/MEDIUM VELOCITY OPEN SPRAY NOZZLE
- VALVE CONTROL SYSTEMS

FIRE SUPPRESSION SYSTEMS

CLEAN AGENTS

- SIEX-HC™
- SIEX-HC™ S-FLOW
- SIEX-NC™ 1230
- INERT-SIEX™
- INERT-SIEX™ CFT
- SIEX™CO₂

WATER MIST

- UAC (cylinder groups)
- UAP (electrical / diesel pump unit)

DRY CHEMICAL POWDER

- STORED PRESSURE
- CARTRIDGE OPERATED
- STATIONARY / SEMI-PORTABLE HAND HOSE LINE DRY CHEMICAL EXTINGUISHING SYSTEMS UNITS
- HAND HOSE DRY CHEMICAL EXTINGUISHER TRAILERS
- TWIN AGENT

FOAM PREMIX

AUTONOMOUS DETECTION

KITCHEN SYSTEMS

MANUAL FIRE PROTECTION

HOSE REEL CABINETS

- WITH SEMI-RIGID HOSE
- WITH FLAT HOSE
- ALARM AND EXTINCTION CENTERS

HYDRANTS

- DRY BARREL
- WET BARREL
- BURIED
- CUSTOM CABINETS FOR HOSE AND ACCESSORIES

EXTINGUISHERS

- WATER
- DRY CHEMICAL
- CO₂
- SPECIAL APPLICATIONS (non-magnetic, etc.)

FIRE, SMOKE AND TEMPERATURE CONTROL

SECTORIZATION

- **SMOKE CONTROL:**
 - KORTOX SMOKE FIX 600 C°
 - KORTOX SMOKE AUTOMATIC 600 C°
 - KOTEX SMOKE AUTOMATIC 1100 C°
- **FIRE CONTROL:**
 - KORTOX FIRE E
 - KORTOX INSULATION FIRE EW
 - KORTOX RAIN FIRE EI

ELECTRONIC MECHANISMS OF CONTROL

EXPULSION OF SMOKE

- LOUVER (LAM)
- TWIN FLAP

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